



# BODY TALK

USING SENSORY AND MOTOR STRATEGIES TO IMPROVE  
COMMUNICATION

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# WHO WE ARE

- Graduated together from WVU in 2014 with Master's Of Occupational Therapy
- Annika
  - Doddridge, Lewis, and Gilmer county schools
  - Birth to Three- early intervention in Harrison county
  - WV Waiver clients
- Breanna
  - Full-time Birth to Three in Hancock, Brooke, Ohio, and Marshall county
- grOwT
  - Tele-OT program that will assist Pre-K classrooms in developing fundamental skills and improve readiness for learning





# LEARNING GOALS

- Description of Sensory Systems
- How each sensory system can affect communication, attention, and carryover of skills
- What is over-stimulated vs. under-stimulated look like in a child
- Sensory techniques to improve learning, focus, and progress

# WHY SHOULD WE CARE?

- Developmental crisis
  - Higher demands for performance is being put on children earlier, yet they are not being taught the skills needed to meet these demands
  - Demand starts at birth and children are not going through the proper states of development
  - Decreased focus on tummy time due to fear of sleeping on stomach
  - Loss of play in favor of using tablets and other technology to keep child busy
  - Increase in technological play
  - Decrease in sensory play
- Children are not ready, or have the ability to learn and focus, when they get to school.

# BIRTH TO THREE DEVELOPMENT

- We are seeing an increase of “container babies”
  - Stay in swings, seats, cushions, vibrating chairs, or otherwise restrained
  - Container Baby syndrome has been linked to:
    - Head and face deformities
    - Decrease muscle strength and coordination
    - Decrease in speech, hearing, and visual development
    - ADHD
    - obesity
    - Primitive reflexes not integrated (STNR, ATNR, etc.).
      - Reflex integration is crucial for proper development.



# TUMMY TIME!

- Tummy time in developing babies has been greatly decreased due to babies being in containers and parental fear.
- Back to sleep became the gold standard around 1992. Since that time, parents have become very fearful and avoidant of children being on their tummy.
- Tummy time develops:
  - Strength and motor planning for crawling, walking, sitting, rolling
  - Head, neck, back, shoulder, and core strength
  - Helps stretch core from fetal position in womb
  - Develops hand eye coordination



# TUMMY TIME AND SPEECH

- Tummy time helps develop respiratory control, diaphragm, and core muscles used for speech productions
- Enables child to explore their surroundings
- Allows them to develop chin, neck, and facial strength crucial for feeding and sound production by going against gravity.
- Speech and language development is directly correlated with development of motor skills.



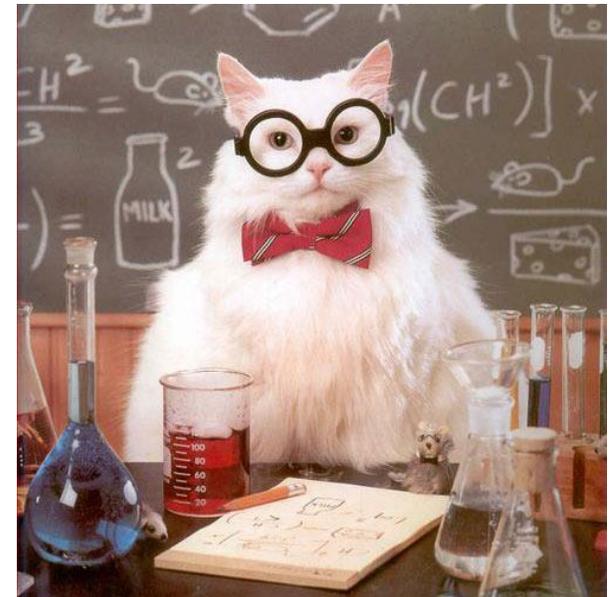
# TUMMY TIME TIPS

- Make sure baby isn't very tired or hungry. It will cause an increase in agitation
- Start slowly- even just about 30 seconds at a time in the beginning
- Have them play with their favorite toy while on tummy to encourage more time on tummy.
- Start in a propped position or on a wedge if child is very agitated with tummy time, or you can use a peanut ball.



# WHAT THE RESEARCH SAYS

- Decrease in motor skill development
- Increase in ADD, ADHD, Sensory Processing Disorder, and other sensory issues
- Increase in number of children who are on medication
- Higher demand being put on teachers and therapists
- Less physical activity in school day
  - Decreased recess time
  - Decreased requirement for gym classes



# WHERE ARE WE SEEING THIS

- Early Intervention
- Schools
- Outpatient
- Home



# SENSORY PROCESSING

- **Sensory Processing:** refers to the way the nervous system receives messages from the senses and turns them into appropriate motor and behavioral responses
- **Sensory Processing Disorder:** exists when sensory signals are either not detected or don't get organized into appropriate responses

# WHAT CAUSES SENSORY PROCESSING ISSUES?

- Research has not pinpointed specific causes, but believe it is genetic-based
- Possible causes:
  - Poor prenatal care
  - Premature birth
  - Extended hospitalization either immediately following birth or in infancy
  - Maternal substance abuse
  - Neglect as an infant (little handling or moving)
  - Environmental factors
  - Repeated ear infections while young
  - General developmental delay

# RED FLAGS FOR SENSORY PROCESSING ISSUES

- **Infants and toddlers**

- Problems eating or sleeping
- Refuses to go to anyone but their parent for comfort
- Irritable when being dressed; uncomfortable in clothes
- Rarely plays with toys
- Resists cuddling, arches away when held
- Cannot calm self, excessive tantrums
- Floppy or stiff body, motor delays

# RED FLAGS FOR SENSORY PROCESSING ISSUES

- **Pre-schoolers**

- Over-sensitive to touch, noises, smells, other people
- Difficulty making friends
- Difficulty dressing, eating, sleeping, and/or toilet training
- Clumsy; poor motor skills; weak
- In constant motion; in everyone else's "face and space"
- Frequent or long temper tantrums

# RED FLAGS FOR SENSORY PROCESSING ISSUES

- **Grade-schoolers**

- Over-sensitive to touch, noise, smells, other people
- Easily distracted, fidgety, craves movement; aggressive
- Easily overwhelmed
- Difficulty with handwriting or motor activities
- Difficulty making friends
- Unaware of pain and/or other people

# RED FLAGS FOR SENSORY PROCESSING ISSUES

- **Adolescents and adults**

- Over-sensitive to touch, noise, smells, and other people
- Poor self-esteem; afraid of failing at new tasks
- Lethargic and slow
- Always on the go; impulsive; distractible
- Leaves tasks uncompleted
- Clumsy, slow, poor motor skills or handwriting
- Difficulty staying focused
- Difficulty staying focused at work and in meetings
- Unmotivated; never seems to get joy from life

# Sensory Processing Disorder

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graph LR; A[Sensory Processing Disorder] --- B[Sensory Modulation]; A --- C[Sensory-Related Motor Disorder]; A --- D[Sensory Discrimination]; B --- E["1. Over-responsive<br/>2. Under-responsive<br/>3. Sensory craving"]; C --- F["1. Postural Control<br/>2. Dyspraxia"]; D --- G["•Visual, Auditory, Tactile,<br/>Oral/Smell,<br/>Position/Movement,<br/>Proprioception,<br/>Interoception"];
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Sensory Modulation

1. Over-responsive
2. Under-responsive
3. Sensory craving

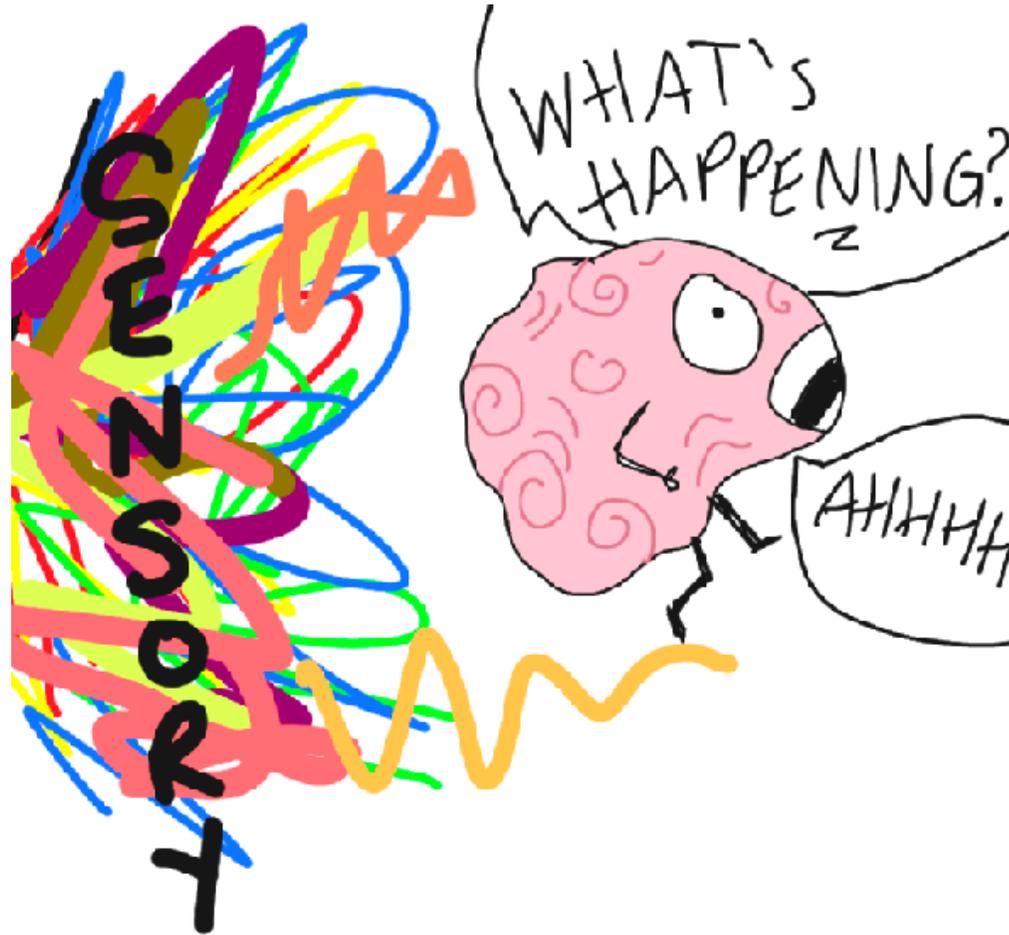
Sensory-Related Motor Disorder

1. Postural Control
2. Dyspraxia

Sensory Discrimination

- Visual, Auditory, Tactile, Oral/Smell, Position/Movement, Proprioception, Interoception

# SENSORY MODULATION



# OVER-RESPONSIVE

- Over-responsive
  - More sensitive to stimuli
  - Bodies respond to stimuli too easily or too intensely
  - May feel as if they are being bombarded with information
  - Constantly in “fight or flight” mode
  - These children usually demonstrate two different types of sensory behaviors
    - Sensory Sensitivity: Pick up everything, not able to filter out information
    - Sensory Avoiding: withdraw from situations in which they may encounter unwanted stimuli
  - Can result in difficult behaviors such as tantrums, hitting, screaming, running away, etc.

# FIGHT OR FLIGHT

- fight or flight response “is a physiological reaction that occurs in response to a perceived harmful event, attack, or threat to survival.”
- Sensory over load can be perceived as an attack activating the sympathetic nervous system
  - Eyes dialating
  - Agitation
  - Screaming/crying
  - Rocking/tucking in arms and legs
  - Meltdown that they cannot be coaxed out of
  - Short shallow breathing
  - Face flushing

# FIGHT OR FLIGHT: WHAT TO DO

- Acknowledge that you understand what they are “afraid” of, especially for non verbal children. “ I know that fire alarm is very loud, but you are ok and not going to get hurt. It will stop soon”
- Deep pressure (pressure vest, compression garments) and weighted blankets can help calm. (more strategies for deep pressure later)
- Giving them space to calm down and regulate emotions without fear of punishment.
- Deep breathing!
- Discuss the incident after they have calmed down.
- Social stories- use this to prepare them for these situations before hand. Using different to desensitize gradually (recording a sound, having them listen to it while they control the volume, gradually get louder).

# EXTREME ANXIETY

- The children that exhibit sensory over-responsiveness will avoid situations or become very anxious in situations where they know they will encounter overwhelming sensory stimuli.
- They may display bad behavior to get out of the situation (being sent to the office before gym class)
- They may have emotional outbursts with schedule changes, or when routine changes (2 hr delays, substitute teacher)
- They may be very whiny, avoid eye contact, hold ears so they can't hear you

# EXTREME ANXIETY: WHAT TO DO

- Discussing events before they happen.
  - What to expect
  - Go through each one the senses (the band playing will be very loud)
- Giving names to feelings (did that loud sound make you feel scared?)
- Visual schedules they can reference
- Gradual desensitization
- Letting them know you understand
- Giving them control of the session
  - (Having them gradually turn up the sound)

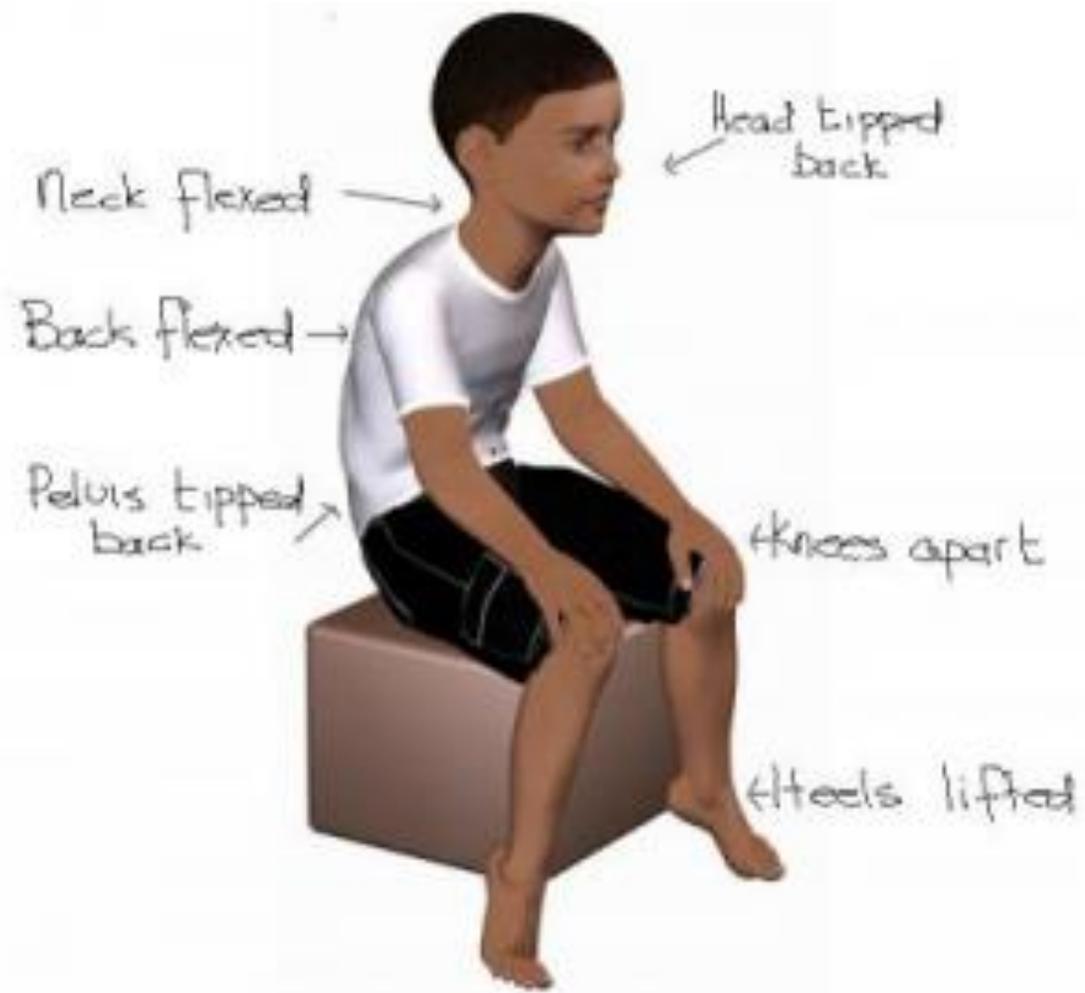
# OVER-RESPONSIVE

- Under-responsive
  - Not responding, or perceiving the stimuli in their environment at the usual or proper intensity
  - Children often seem quiet, passive, or withdrawn
  - Difficult to engage and seem self-absorbed
  - Decreased body awareness, which makes them clumsy and uncoordinated
  - High pain tolerance
  - Decreased ability to discriminate between hot and cold
  - Pattern of behavior also called “Low Registration”

# SENSORY CRAVING

- Commonly referred to as Sensory Seeking
- Children with this actively seek out or crave sensory stimulation because their threshold for sensory input is almost never ending
- Constantly moving, crashing, bouncing, running, jumping
- Inability to sit still
- May have the need to touch everything, be overly affectionate, or not understand personal space.
- Often labeled as ADHD or ADD
- More of the input they are seeking does not usually result in regulation, it can sometimes make them more dysregulated

# SENSORY BASED MOTOR DISORDERS



# SENSORY-BASED MOTOR DISORDERS

- Postural Disorder
  - These kids have a difficult time stabilizing their body at rest or during movement
  - May need supports such as a wedge, ball, pillow, etc. to help improve posture when sitting
  - These are the kids that are constantly slumped over or bracing themselves on something
- Dyspraxia/Motor Planning
  - Because of difficulty processing sensory information, they have difficulty planning and carrying out new motor actions
  - Clumsy, awkward, accident prone, may break toys or have poor fine motor skills
  - Prefer sedentary activities or try to talk their way out of doing activities
  - These are the kids that can't touch their nose if you ask them to



# SENSORY DISCRIMINATION

# SENSORY DISCRIMINATION

- Understanding accurately what is seen, heard, felt, tasted, or smelled
- Children with discrimination problems have difficulty determining the characteristic of sensory stimuli
- Issues deciding what foods feel like in their mouth, what letters they see on the paper, if the teacher said house or mouse, if they are falling backwards or sideways, etc.
- Can appear awkward in fine and gross motor movements, inattentive, or be picky eaters
- Takes extra time to process sensory information accurately
- We will go over each of these sections in depth



VIDEO

HANG IN THERE!





QUESTIONS?

# IS IT SENSORY OR BEHAVIOR?

- Is it a behavior?
- Is it willful?
- Is it learned?
- Is there an obvious cause to the behavior?
  - Avoiding something, attention-seeking, in response to being told “no”
- Behaviors will go away if you “give-in” to the behavior
  - For example, your child doesn’t want to go into the store. You tell him he has to, and he starts having a tantrum. If you tell him he doesn’t have to go in, and he immediately stops having a tantrum. This is a behavior only.
    - If you tell him he doesn’t have to go in to the store, and he continues to cry and scream, this could be sensory related. Maybe he is overly sensitive to the sounds and visuals in the store and the thought alone of going into the store is too much to handle

# ANALYZING BEHAVIORS

- ABC's of Analyzing Behaviors
  - A: Antecedent
    - What happened immediately before the behavior occurred?
    - Special events that impact the child's behavior
      - Lack of sleep, emotionally upset, woke up late, sick, hard day, hungry, long bus ride, etc.
    - Environmental factors:
      - More likely to occur: Large room, unstructured tasks or schedules, poorly planned transitions, low child-adult ratio, proximity of others, stress or frustration, noise/clutter, change, boredom/lack of stimulation, excessive waiting time
      - Less likely to occur: small room, structured tasks, one-to-one child-adult ratio, child-directed activity, engrossing task, stimulating/interesting activities, no waiting time, quiet environment, area free of distractions/clutter, repetition/routine, pre-planned transitions, familiar people, assistance provided
  - Warning signs or predictors of behaviors
    - Restlessness, eye aversion, distractibility, pause, raised voice, hand flapping/stimming



# ANALYZING BEHAVIORS

- B: Behavior
  - Avoidance behaviors, bad behaviors, attention-seeking, aggressive behaviors, OCD-like behaviors
  - Are the behaviors linked?
  - Do they occur in response to the same situation, in a predictable pattern?

# ANALYZING BEHAVIORS

- C: Consequence or Causes
  - Primary Cause
    - Obtain: Communication (Attention, Object, or Activity) or Internal/Systemic response (Sensory)
    - Avoid/Escape: Communication (Attention, Task, or Event) or Internal/Systemic response (Sensory)
  - Primary Reinforcers
    - Preferred task
    - Sensory-based activities
    - Food, candy, or drink
  - Secondary Reinforcers (consequences)
    - Attention
    - Avoiding task
    - Habit
    - Punishment
    - Reprimand
    - Eye contact

# EXAMPLE 1

- Sarah doesn't get along well with the other kids. She frequently takes toys from the other kids, lashes out when they try to play with her, frequently hits the other kids, and throws tantrums when the daycare teachers attempt to discipline her.
  - When Sarah takes toys away from the other kids, daycare staff sometimes take the toys and give back to the kids, and sometimes ignore the behavior if they are busy.
  - At home, Sarah's parents find it difficult to control her behaviors and her tantrums, and usually just give in so she will stop crying
  - Daycare teachers haven't found a consistent way to discipline Sarah and wonder if her behaviors are sensory related
  - When daycare teachers and Sarah's parents ignore her tantrums, use re-direction techniques, decrease negative attention, and decrease the amount of times they give in to her requests, Sarah's behaviors decrease which means that her behaviors are strictly learned behaviors, and not sensory in nature.

## EXAMPLE 2

- Liam is described as an anxious, fearful, and overly sensitive child. He seems to get upset very easily and just about anything it seems will “set him off.” He doesn’t get along well with other kids, and when playing with other kids he frequently gets upset and furious over something, cries uncontrollably, and leaves the game.
- When children get too close to him or touch him unexpectedly, he will lash out, throw a tantrum, and has been known to hit other kids
- He gets very upset when he cannot control the situation or others, and is also terrified of animals because he can’t control them. If the schedule changes in his day, he becomes very upset and will tantrum until it is fixed.
- These above behaviors are caused by Liam’s hyperresponsiveness to auditory, visual, and tactile stimuli and his overall Sensory Avoidance behaviors. The tantrums, hitting others, and lashing out are learned coping behaviors
- Must address first the sensory issues before you can address the bad behaviors

# AUDITORY PROCESSING



# AUDITORY PROCESSING

- How your brain processes sounds
- Auditory Processing issues are **not a hearing** problem, but a **perception** problem
- Kids with issues with auditory processing can have a hard time filtering background noise, distinguishing and locating specific sounds like voices
- Hyper- or Hypo-sensitive hearing
- Frequently also have communication delays and visual processing problems as well

# AUDITORY PROCESSING

- Hyper-sensitive: when sounds are perceived too intensely or more frequently than normal
  - Buzzing of fluorescent lights, humming of computers, other people in the next room
  - Annoyed or distracted with sounds such as fans, clocks, traffic
  - Kids will use humming or hold their ears to drown out the sounds they are hearing



# FUN FACT

Some scientists say hypersensitivity to sound may be linked to magnesium deficiency

# AUDITORY PROCESSING: HYPERSENSITIVE KIDS

- Can become angry at sudden and loud noises, may cry or scream
- Covers ears or may isolate self in social situations
- Avoids noises such as toilet flushing, hair dryers, or water flowing
- Bothered by high-pitch noises such as whistles and chalk
- Distracted by metallic sounds, such as silverware clanking
- May get upset when people clap
- In babies or toddlers, hypersensitivity to sound can result in the child being upset or crying all the time for seemingly no reason

# AUDITORY PROCESSING STRATEGIES: HYPERSENSITIVE KIDS

- Decrease background noise as much as possible
- Guide them on what sounds to focus on
- Give advance warning whenever possible
  - “You’re about to hear the fire alarm go off, it’s just a drill.”
- Desensitize with earmuffs or headphones (not a long-term solution)
- You can record a sound they are particular sensitive to and have them control making it louder and louder and when the sound stops and starts
- Be aware of things that make noises that you might not pick up on, such as computers or lights above
- White noise or other calming sounds in background may help\*\*
  - Nothing with lyrics

# AUDITORY PROCESSING: HYPOSENSITIVE KIDS

- May keep TV and radio very loud
- Doesn't respond to name being called
- Have to repeat yourself to them often
- May look around when you are talking to them because they don't recognize where the sound is coming from
- In younger kids, this could look like a receptive communication problem or delay
  - They may not be able to follow simple commands, or just repeat words back to you but not truly understand what is being said
- Will flock towards noise making toys, even holding them up to their ears

# AUDITORY PROCESSING STRATEGIES: HYPOSENSITIVE KIDS

- Make sure they are looking at your face when you give them a command
- Give a tactile cue to help get their attention
- Give them a visual cue along with your verbal command
- Allow extra time to respond, you may need to repeat yourself
- Can put on calming or rhythmical music on in the background
- Can use their preferred music/sounds (out loud or with headphones) as a reward or sensory break to help them regulate

# VISUAL PROCESSING





# VISUAL PROCESSING

- How your brain processes and perceives visual stimuli
- Can be over-responsive or under-responsive
- Visual processing issues are **not a vision problem**, but a **perception** problem
- Overlooked area of development
- This can be misdiagnosed as attention problems, learning disabilities, or problems with visual acuity
- Issues with filtering out visual information
- Repetitive visual information can be especially challenging

# VISUAL PROCESSING: UNDER-RESPONSIVE KIDS

- Child may have difficulty naming colors or shapes
- Difficulty differentiating big vs. little
- May miss part of a worksheet
- May have difficulty pointing out objects out of a background
- May miss objects in competing background
  - Ex. Looking at a whiteboard with a colorful border and board of kids art work on it
- May seek out colorful, shiny, and/or moving objects such as a fan, brightly colored TV show, or reflective surfaces
- Difficulty with spacing between words, letter formation, sizing, and writing in between the lines

# VISUAL PROCESSING STRATEGIES: UNDER-RESPONSIVE KIDS

- Reduce clutter
- Seat them facing away from doors or windows to decrease visual distractions
- Reading rulers
- Use exaggerated facial expressions
- Brightly colored paper
- Use different colored lines or dots to mark the edge of a paper or end of a section on worksheet
- Add in a motor component to your session
  - Ex. Slide a bingo chip to the right answer instead of using pencil to circle answer
  - Ex. Using objects and moving those objects instead of using worksheets
- Have visual stimulation breaks such as a kaleidoscope
- Write in different textures, such as sand or paint, instead of on paper

# VISUAL PROCESSING: OVER-RESPONSIVE KIDS

- Can be uncomfortable with fluorescent or bright lighting
- May rub their eyes frequently or eyes may appear tired, glazed over, watery, or red
- Difficulty making eye-contact
- Difficulty concentrating or focusing in a room with a lot of posters or colorful signs on the walls
- Often lose place when copying from a book or reading
- May be sensitive to sunlight, can be more irritable in sunlight or may seek out shade during recess
- May have difficulty making choices between two visual things
- Frequently have issues with auditory processing as well

# VISUAL PROCESSING STRATEGIES: OVER-RESPONSIVE KIDS

- Use natural light when possible instead of overhead lighting
- Use lamps or indirect lights in place of overhead lighting
- Avoid use of fluorescent bulbs
- Be mindful of reflective surfaces, such as whiteboards and mirrors
- Turn down brightness on computers
- Give a warning before you turn on a bright light
- Allow them to look at your mouth instead of forcing them to look at your eyes
- Have child face wall instead of a bright poster or window
- Use folders to block off the rest of the classroom or workspace
- Use black and white paper under whatever you are working on to contrast
- Decrease use of exaggerated facial expressions and body language, such as talking with your hands

# VISUAL PROCESSING: GENERAL THINGS TO REMEMBER

- Important to first rule out any vision problems, such as acuity, lazy eye, or cortical vision impairment, before addressing visual processing
- Change up visual input
  - If you find yourself using a lot of worksheets, change it up and use tangible objects whenever possible
- For all kids, using indirect and natural lighting is more beneficial than fluorescent or over-head lighting
- Changing visual field such as putting the paper on an easel instead of flat on the desk
- Breaking up the work: cut worksheet in half and do one half at a time
- Use contrasting backgrounds

# VESTIBULAR



# VESTIBULAR PROCESSING

- The vestibular system is the first sensory system to develop in utero and is located in the inner ear
- Linked very closely with auditory processing
- This system acts as the organizer for where all sensory input should go
- Detects movement and gravitational pull, where our head is in space, where our bodies are in space
- This system affects aspects of physical function like posture, balance, movement, coordination, attention, arousal level, impulsivity and behavior.
- Interconnected to many systems in the brain such as the limbic system and cerebellum

# VESTIBULAR PROCESSING: HYPO-SENSITIVE KIDS

- Under-arousal to vestibular stimuli
- Have also been referred to as “vestibular avoidant” kids
- Fearful of movement, insecure in their movements and in the environment
- In younger kids
  - Fearful when picked up suddenly
  - Fearful when placed on their back for diaper changes
  - Dislike bathing when they have to tip their head back
- Clumsy and slow moving, always leaning against things, slumped over in chair, bad posture
- Avoid playground equipment and activities that involve their feet leaving the ground
- Prefer sedentary and seated tasks

# VESTIBULAR PROCESSING STRATEGIES: HYPO-SENSITIVE KIDS

- Positioning is super important if you want success with these kids
- Use pillows or rolled up blankets/towels to help them stay upright and keep from slumping over in their chair
- These kids may feel safer sitting on the ground or being on their belly
- Make sure feet are supported and on the ground, use a step stool if needed
- Proper chair and table height, may need a booster seat

This will make the child feel more secure and allow him/her to focus on your session, instead of focusing on their insecurities

# VESTIBULAR PROCESSING: HYPER-SENSITIVE KIDS

- Also known as “vestibular seeking”
- Always moving, fidgeting, bouncing up and down in their seats, poor attention, darting all over the place
- Clumsy, poor body awareness
- “Daredevils”
- “Fight or flight mode” makes it difficult for these kids to concentrate because they are always fighting the need to move
- Can appear to be lost, difficulty finding things in common locations
- Can result in highly emotional responses, or tantrums, because of the insecurity and anxiety of their environment

# VESTIBULAR PROCESSING STRATEGIES: HYPER-SENSITIVE KIDS

- Important to do exercises/strategies **before** your session to increase focus
- Breathing exercises
- Rocking back and forth
- Rolling across the floor
- Squeezing/deep pressure through shoulders
- Weighted items such as blankets and lap pads
- Proprioceptive activities (don't worry, that's next!)

# PROPRIOCEPTION





# PROPRIOCEPTION

- Proprioception senses the position, location, orientation, and movement of the body muscles and joints.
- Provides us with the sense of the relative position of neighboring parts of the body and effort used to move body parts.
- Very closely related to the vestibular system, as it also tells us what our body is doing in space
- Problems with proprioceptive processing can make it difficult for kids to concentrate, play appropriately with their peers, difficulty with writing, and make them clumsy



# SIGNS OF DIFFICULTY WITH PROPRIOCEPTIVE PROCESSING

- Frequent crashing, bumping, climbing, falling, or jumping
- Frequent kicking while sitting or stomping feet while walking
- Puts self into tight spaces, such as corners or toy boxes
- Uses too much force when writing or coloring
- Often plays too rough with peers, family, or animals
- Misjudges force to pick up something
- Difficulty isolating body movements, such as touching finger to nose
- Frustrated easily

# PROPRIOCEPTIVE INPUT STRATEGIES

- Proprioceptive is very versatile: it can be used to stimulate an under-stimulated kid and help calm an over-stimulated kid
- Heavy work
  - Carrying something heavy, such as a bag of groceries
  - Squeezing something in your hands
  - Chewing something tough, like taffy or a tootsie-roll
  - Pushing and pulling something across the floor
  - Lifting, climbing, or crawling with your entire body
  - Animal walks: bear crawl, crab walk, etc. can be done on the way to speech room without taking up too much time
  - Wheelbarrow walks
  - Hopping

# PROPRIOCEPTIVE INPUT STRATEGIES

- Deep pressure activities
  - Squeezing them into a "burrito" or "sandwich"
  - Squeezing them with pillows or cushions
  - Deep pressure through shoulders or massage
  - Bear hugs
  - Rolling on large ball on their belly
  - Laying on floor propped up on elbows
- Allow movement as much as possible prior to session
  - Try to schedule your session right after recess or gym class
  - Have them carry their backpack or your bag to your session from their class
  - Can have them "prep" for session by setting up the room and moving things around
- Stretching before session or in the middle of session
- Weighted lap pad or blanket to help cue sitting and give prolonged input needed during session

# INTEROCEPTION





# INTEROCEPTION

- The 8<sup>th</sup> sensory system
- gives us the ability to feel what is happening inside our bodies
- nerve receptors all over our bodies including our internal organs, bones, muscles, and skin.
- These receptors send info to the brain which uses it to determine how we feel
- the purpose of the interoceptive system is to help our bodies stay in a state of optimal functioning and balance, known as homeostasis.
- Hunger, thirst, fatigue, need for the bathroom, body temperature, nausea, pain, arousal

# INTEROCEPTION CONTINUED

- Linked to our emotions
- For example, you see someone push another person. Your muscles may tighten, you clench your teeth and fists, your heart rate increases, and your face gets warmer. You recognize this as being angry. These sensations are linked to interoception, and therefore interoception is linked to our emotions.
- Research has shown that our ability to read our physical signals directly relates to how well we can identify and regulate our emotional states and communicate with others
- This also directly impacts our ability to accurately read someone else's physical and emotional cues and nonverbal

# INTEROCEPTION AND SPD

- This system can be dysregulated just like any of the other systems
- Can be over or under responsive
- High pain tolerance vs. low pain tolerance
- Difficulty with hot/cold discrimination
- Difficulty understanding what internal cues are
  - This leads to being confused, anxious, distracted because the body's needs cannot be met because you can't tell what the cue are
- Makes it difficult to understand your own emotions and can make someone feel very overwhelmed and react inappropriately such as physical aggression, shutting down, fleeing, inappropriate laughing or smiling (use Leelynd as an example)



# DYSREGULATION OF INTEROCEPTION

- Other impacts of the Interoceptive system
- Self-regulation
- Self-awareness
- Social thinking
- Flexibility of mind
- Problem solving
- Intuitive social skills
- Social participation

# INTEROCEPTION TREATMENT

- Focuses on learning to attend to interoceptive signals, increase ability to notice sensations, give meaning to these sensations, and eventually build related skills
- Mindfulness activities: “listening” to you body
  - What is it saying?
  - What do you feel?
  - Yoga poses
  - Breathing exercises



# TACTILE AND ORAL SENSORY PROCESSING



# TACTILE AND ORAL SENSORY PROCESSING

- How your brain perceives touch and oral input
- Hyper-sensitive kids
  - Hate to be messy, fearful of new textures, don't like to play with Play-Doh, always ask for their hands to be wiped off
  - Picky eaters, only eat things that are crunchy and quick to break down
- Hypo-sensitive kids
  - Low pain tolerance, difficulty distinguishing hot vs. cold
  - May over-stuff their mouth when they are eating

# HOW DOES THIS AFFECT YOUR SESSIONS?

- Hyper-sensitive kids
  - Be mindful of their sensitivity when planning your sessions
  - Kids can get anxiety if even talking about doing a certain task, such as going swimming or getting mud on them
  - Light touch is worse than deep touch
- Hypo-sensitive kids
  - May impact your planning of your session
  - Ways to build it into your session
    - Have child describe the way certain things feel like such as ice cream vs. soup
    - Warm up their mouth with oral motor exercises
    - Have them close their eyes and feel inside box, then describe what they feel/find
    - Sand tray to trace letters and numbers, to draw shapes, put worksheets underneath
    - “Touchy feely” books for toddlers



# SMELL

- Avoid strong odors in your room, such as perfumes, candles, plug-ins as these can be overstimulating and distracting. This can make the child avoidant of your room as well
- Essential oils can be used for calming or stimulating
  - Calming: Lavendar
  - Stimulating: Orange and Peppermint
- Need permission to apply directly to child
- Can use a diffuser
- Test in small amounts
- Any doubts, just avoid strong scents all together

# FEEDING



# FEEDING

- Be aware of sensory issues
- If they won't touch it, they probably won't put it in their mouth
- Allow to smell, touch, and experience foods with little or no pressure to eat it
- Talk about things **before** you do them
- Oral motor exercises before starting session to desensitize their mouth
- Prior to feeding session, you can do previously discussed proprioceptive and vestibular activities to help regulate sensory system
- Tactile activities, such as sensory bins, can also help with aversions to textures



# FEEDING: POSITIONING STRATEGIES

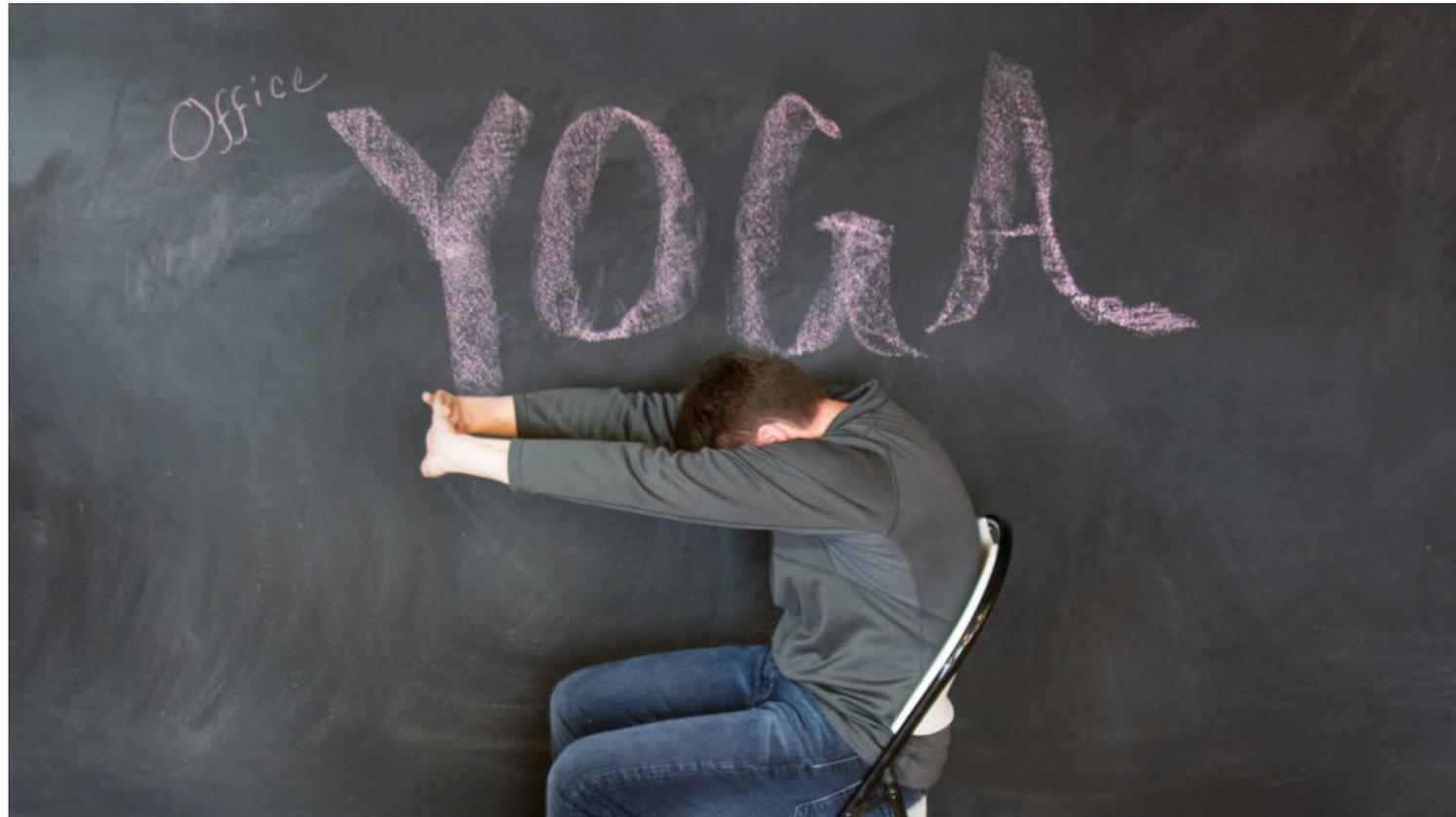
- Important to be upright in chair with feet supported
- Poor posture can negatively affect digestion, swallowing, and breathing
- Make sure eating surface is the appropriate height
- May need to use back and trunk supports for kids with low tone



# THERAPIST SENSORY BREAKS

- Sometimes we are the ones who need a break!
- We all know the effects of prolonged sitting and computer use
- Taking a brief sensory break can help relive stress, increase energy, increase productivity , and decrease the negative effects of sitting.
  - Improve posture
  - Boost immunity
  - Improve digestion

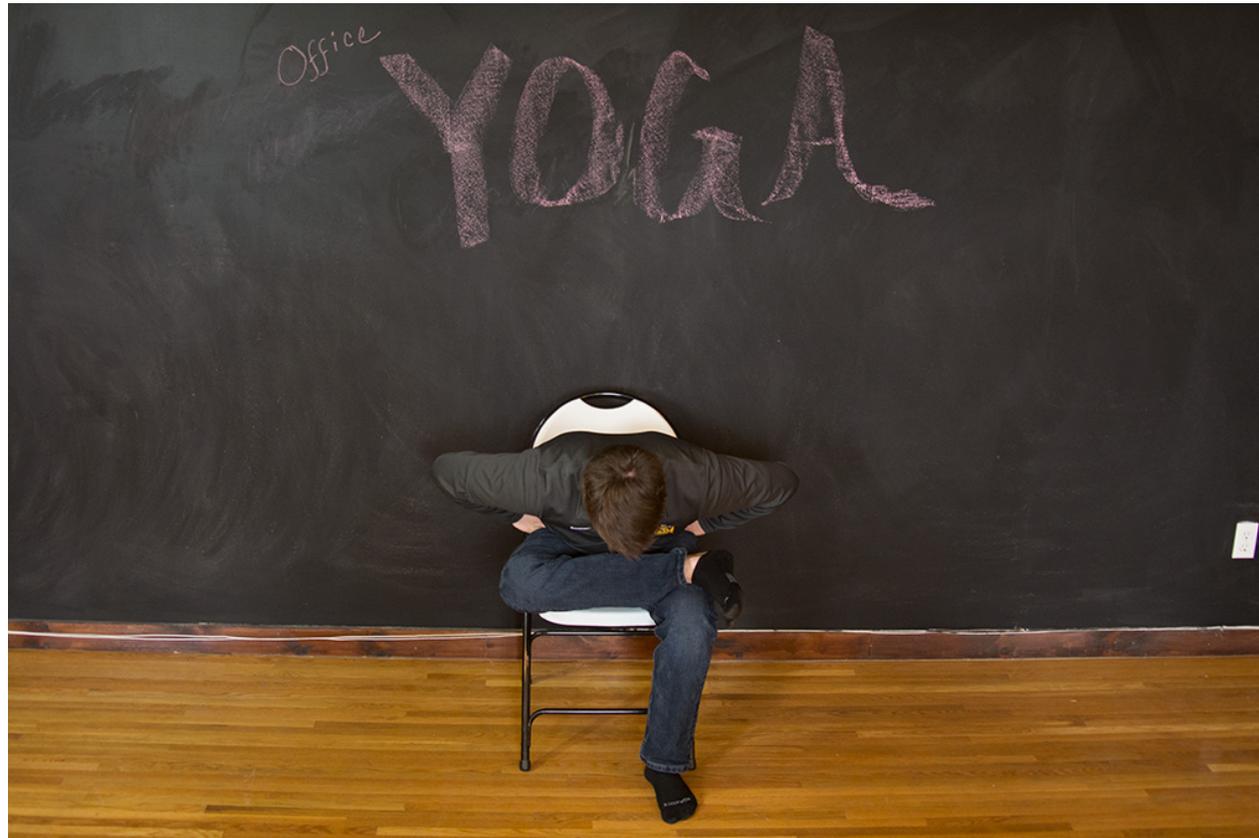
# WRIST AND UPPER BODY STRETCH



# UPPER BODY STRETCH



# LEG STRETCH



# CAT/COW STRETCH



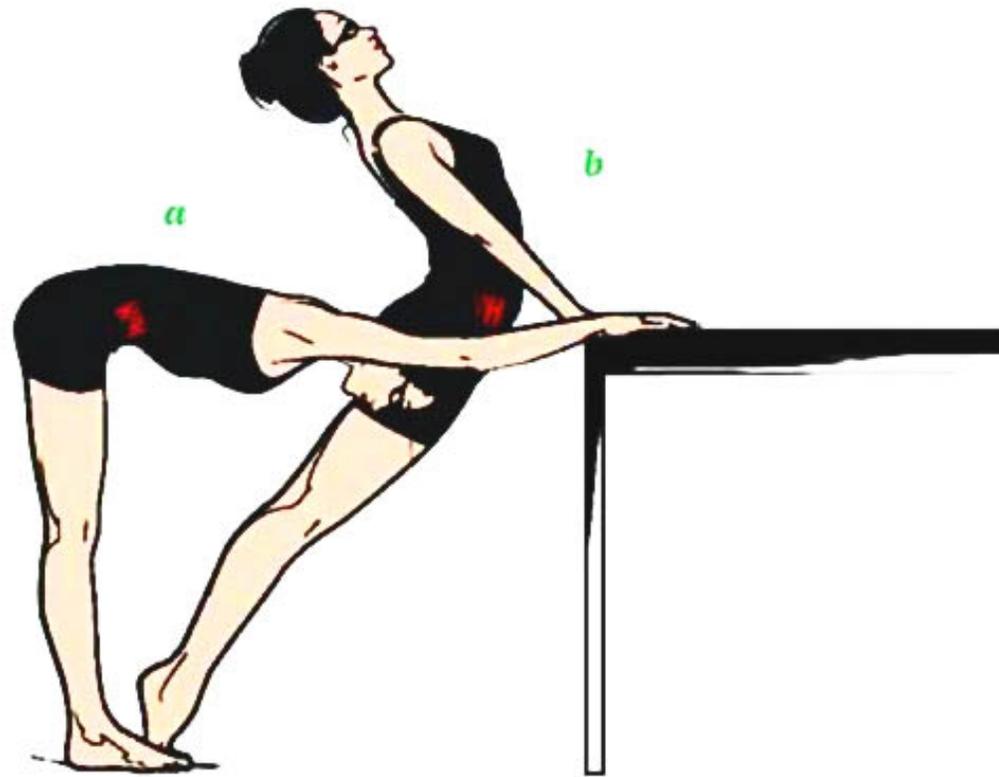
# CHAIR TWIST



# SIDE BODY STRETCH



# DESK DOWNWARD DOG





QUESTIONS?