

Financial Disclosure Statement

Tapping Into Your Senses: An Occupational Therapy Approach in a Speech Therapy World—Putting it to Practice

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Jessica Matheson, MSP, CCC-SLP and Christine Todaro, MS OTR/L are both employed at Therapy360 in Greenville, SC. They have no **relevant financial or nonfinancial relationships** in the products or services described, reviewed, evaluated or compared in this presentation.

Defining Sensory Processing

- **Sensory processing** is “the neurological process that organizes sensation from one’s own body and from the environment and makes it possible to use the body effectively within the environment.”

Organization
of sensation
for use



Occurs automatically
within people, an
unconscious process
of the brain

DiMatties, M. & Sammons, J. Understanding Sensory Integration. In C. Royeen & A. Luebben (Eds.), *Sensory Integration: A Compendium of Leading Scholarship* Fitchburg: Wolf Creek Publishing Services.

Defining Sensory Processing (Ayres, 2005)

- Jean Ayers, Occupational Therapist
 - Began developing the theory in the 1960’s
- Allows the brain to:
 - Organize one’s senses
 - Give meaning to what is being experienced
 - Allows us to respond/act
 - Forms an underlying foundation for learning and emotional regulation
- Sensory experiences provided with a context provides meaningful activities and results in adapting responses that enhance learning.



The Nervous System— A Sensory Perspective



- **Cerebral Hemispheres**

- Performs the most complex organization of **sensory input** and allows us to link meaning to our sensations
- Right lateralization : left body movement; visual/touch sensations
- Left lateralization: right body movement; better at directing fine motor skills; language centers

- **Cerebellum**

- Processes many types of sensations, but is mostly used for organizing gravity, movement and muscle joint sensations so that our body movement is fluid and coordinated.
- Receives input from all sensory sources over the afferent neurons and from much of the cerebral cortex for processing
- The centers in the cerebellum "wake up and calm us down." If input in these processes are not organized, "the person cannot focus his attention" and may lead to over excitement.

The Nervous System Con't...

- **Brain Stem**

- Regulates heart rate, breathing, digestion
- Contains nuclei that allow two or more sensations to come together and become a single experience
- Processes sensations from gravity and movement.... MAJOR STRUCTURE WHERE SENSORY INTEGRATION OCCURS

- **Thalamus**

- Sensory nuclei for vestibular, tactile, proprioceptive, auditory, visual and gustatory systems

- **Spinal Cord**

- Carries motor responses and takes in some sensory input although most is processed within the brain.
- Does govern some posture and movement along with organ function regulation.

- **Nerves**

- Direct sensory input through electrical energy
- Peripheral Nerves convey information to and from the CNS nerve fibers that innervate the receptors
- Have cell bodies in the dorsal root ganglia which lead to the CNS.



Making sense of the senses— Main Types of Receptors

1)Exteroceptors






2)Interoceptors

3)Proprioceptors

Making sense of the senses

- **Receptive Field:** Each receptor has a receptive field→ particular areas in the periphery where application of an adequate stimulus will cause a response
- Receptor Potential
 - Threshold for response
 - Olfactory can respond to a single odorant molecule
 - Auditory/Vestibular receptors can respond to small mechanical deflections

Exteroceptors

Auditory	Visual	Tactile	Olfactory	Gustatory
Sound waves in the air stimulate auditory receptors in the inner ear	Light stimulates the retina and sends visual sensory input to processing centers of brainstem	Skin has many receptors including those that distinguish touch, pressure, texture, pain, temperature, and movement	When odorant crosses the mucous layer, stimulation occurs through olfactory filia (thread) and ends at olfactory bulb	Tongue covered by series of papillae, some containing taste buds (approximately 5000 taste buds)
	Visual system is very much involved in our perception of motion and body movement. 	"Without a great deal of tactile stimulation of the body, the nervous system tends to become "unbalanced"" (Ayres, 2005). 	We reproduce olfactory receptors every 1-2 months. 	Safety mechanism 

A Notable Combination of Exteroceptors

- VISUAL and AUDITORY
 - Input can be processed to develop, refine and organize a motor response
 - [McGurk Effect](#) in speech perception research
 - Why is this important?

Exteroceptors--Developing Senses

- Role for sense in infants: explore and make connections with world and self
- Tactile, proprioceptive and vestibular systems mature in utero earlier than visual and auditory systems.
- In fetal life, the stimulation of these older systems result in reflex movements of the neck and mouth, then reflex movements of the arms, legs and trunk (tactile); eye movements (vestibular); and muscle contraction (proprioception)

Exteroceptors--Developing Senses

- The sensory systems develop in concert with one another, not independently of each other. One sensory system can impact or influence other sensory systems.

Exteroceptors--Developing Senses

Tactile

- First to form—more finely tuned at birth than the other senses
- Begins to develop at ~8 weeks gestation
- By 32 weeks, nearly every part of the body can feel change to temperature, pressure, and pain

Taste/Olfactory

- Begins to develop at ~14 weeks gestation
- Detect odors in amniotic fluid through specialized cells in the area of the nasal passage as it is continuing to develop

Exteroceptors--Developing Senses

Auditory

- Muted in gestation
- Response to sound at ~16 weeks gestation, though inner and outer ear structures are not developed until 24 weeks
- Rhythm/pitch can affect baby's heartrate and can have an effect up to an hour post-exposure

Visual

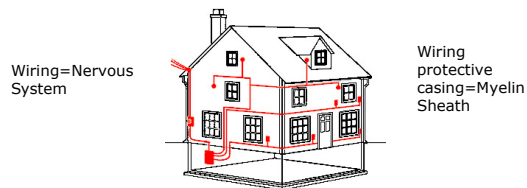
- Eyes remain closed until 25-26 weeks gestation
- 32 week fetus will respond to changes in light from outside the womb
- Reaction to light helps body refine more functions (i.e. movement)

The Four A's of Infancy

- Attention=Ability to focus selectively on a task
- Arousal= Ability to maintain alertness and maintain transition between states
- Affect=Emotional component of behavior
- Action=Ability to engage in adaptive, goal-directed behavior

The Premature Baby

The Body



Myelin sheath is not fully formed in some premature babies. Therefore, "wires" are exposed and the premature baby has difficulty making sense of the outside world. Sensory input may appear stronger to premature infants, thus causing stress on the system.

Interoceptors—Getting to the guts

- Visceral
 - Monitoring internal state
 - Receptors in our internal organs
 - Activity, blood flow and chemicals released into the bloodstream stimulate these receptors
 - Helps regulate blood pressure, digestion, breathing and other ANS functions

Proprioceptors--The Sixth Sense (Schaaf, Lane 2009)



Proprioceptors--Moving a little deeper

- What is Proprioception? (Schaaf, 2009)
 - Proprioception: sum of neuronal inputs from the joint capsules, ligaments, muscles, tendons and skin...a multifaceted system that affects motor control and is hypothesized to have an impact on behavior regulation
- Position and Movement (Proprioceptors)
 - Movement or stimulation of the muscles and bones.
 - Lengthening, shortening, pulling, compressing, bending, straightening
 - Gives a sense of where our body is in relation to our environment

Proprioceptors--Moving a little deeper

- Vestibular:
 - Gravity, Head Movement, Balance
 - Inner ear labyrinth of auditory and vestibular receptors
 - Small crystal-like receptors that bend the follicle-like neurons within the inner
 - When the head bends or moves in any direction, these neurons are activated and the vestibular system is engaged
 - Receptor in semi-circular canals
 - Recognition of acceleration/deceleration
 - Although mostly subconscious, it is highly activated and we become more aware of the vestibular system when we spin/twirl, thus creating the sensation of dizziness.
 - **All movement requires a constant change of posture and adjustment to the center of gravity.**

A Sensory Road Map



- Sensory input flows to the receptors in the spinal cord, upward to the brainstem, cerebellum and cerebral hemispheres
- This produces reactions such as body posture, motor planning and coordination, emotions, thoughts, memories and learning.
- **Integration of sensory information is fundamental to a person's ability to interact efficiently with their environment.**

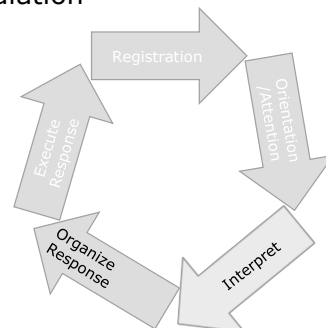
A Sensory Road Map



- The nature and location of a stimulus is indicated by the identities of the receptors that respond including the intensity and duration.
- Sometimes our kiddos just have a disconnection, a missed connection, or mis-assignment of stimuli into the "wrong filing cabinet."

Sensory Processing—A Theory Put to Practice

Sensory Integration and Self Regulation



Source: Williamson, G. Gordon and Anzalone, Marie E. (2001) *Sensory Integration and Self Regulation in Infants and Toddlers: Helping Very Young Children Interact with Their Environment.* (pg. 14) Washington, D.C.: National Institute of Infants, Toddlers and Families.

Revisiting Sensory Processing (Ayres, 2005)



- Allows the brain to:
 - Organize one's senses
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Relating Sensory Processing

NOT A STAND ALONE CONCEPT!

- Piaget Sensory Motor Theory
- Motor Learning Theory



Piaget Sensory Motor Theory

- 1st stage to develop
- Birth-2 years
- Based on "schema"
- First schema=movement
- Behavior is triggered by stimuli!



Motor Learning Theory

- Active process to acquire skilled action through PRACTICE and EXPERIENCE
- Results in permanent changes in behavior
- Evaluated by performance then later generalized
- Practice and feedback
- Changing up the environment and creating new challenges allows for greater practice and adaptability in cognitive practice for motor learning.
- Based on intrinsic and extrinsic responses

Sensory Integration Disorder

- What is it?
 - When the brain is not processing sensory input well therefore leading responses such as behaviors not being effective
 - When the brain is not processing or organizing the flow of sensory impulses effectively
 - "A child with sensory integrative dysfunction often develops in an uneven way." (Ayes, 2005)
 - "Sensory integrative dysfunction is to the brain when indigestion is to the digestive tract." (Ayes, 2005)
- Other terms used for SID
 - Sensory Processing Disorder
 - Sensory Integrative Dysfunction



Sensory Integration Terminology

- **Processing**
 - Brain takes in various sensory input from environment, processes information, and produces behavioral response
- **Modulation**
 - "The **brain's** regulation of its own activity. Modulation involves facilitating some neural messages to produce more of a perception or response and inhibiting other messages to reduce excess or extraneous activity." (Ayes, 2005)
- **Regulation Response**
 - Appropriate responses in arousal, attention and activity levels
- **Discrimination**
 - Allows one to distinguish differences among and between stimuli. It develops over time and with practice. (Kranowitz, 2005)

Definitions

- **Adaptive response**
- **Body Scheme**
- **Gravitational Insecurity**
- **Ideation**

Sensory Integration Disorder Explored (Ayes, 2005)

- What does it look like?
 - May have typical sensory responses in some areas and not others.
 - There may be difficulties dealing with ideas and generalizations.
 - In severe cases, it may appear as though the child has severe cognitive delays.
 - A child with SID may have greater problems with motor planning versus reasoning and intellect.
- "Sensory integrative dysfunction is a malfunction, not an absence of function."

“ The Sensory Kid” in terms of modulation

- Non-seeker
 - Over-responsive non-seeker
 - Reacts dramatically
 - Easily disturbed by stimuli in environment
 - Under-responsive non-seeker
 - May not respond to novel stimuli
 - Doesn't respond quickly or efficiently
- Seeker
 - Sensory seeker
 - Attracted to excessive amounts of non-purposeful interactions, including movement, visual stimuli, etc.
- Combination of the above (Blender)

Overarousal...
What is it?
What do you see?



Over arousal: It came in like a wrecking ball!

- Signs of over arousal
 - Gas
 - Hiccups
 - Fidgety
 - “Skin crawling” tactile input
 - Shifty eyes
 - Yawning
 - Changes in skin color
 - Headaches
 - Changes in respiration/heart rate
 - Pupil dilation
 - Nausea



Screen or not to Screen



- “Excessive exposure of infants to television and videos is associated with impaired cognitive, language, and emotional development and with irregular sleep schedules.”

Screen or not to Screen

- **Screened activity:** Any activity that pertains to technology or device including, but not limited to, television, computer, tablets, interactive white boards, smartphones, etc.
- The average child watches 3-4 hours of television exclusively (not including other screened activities)
- American Academy of Pediatrics
 - Kaiser Family Foundation study in 2010 indicated average 8 to 10 year old spends nearly 8 hrs a day with variety of different media; older children spend more than 11 hours per day
 - No more than 1-2 hours per day of screened activity
 - None before age 2
- ASHA poll of 1000 parents
 - 68% of parents' two year olds use tablets; 59% use smartphones

Screen or not to Screen

- "We're throwing screens at children all day long, giving them distractions rather than teaching them how to self-soothe [and] calm themselves ..."
(Steiner-Adair, 2013)
- What is our treatment contributing to a child's daily exposure to screened activities?

Play Affected by SPD

- Players must act effectively and efficiently on their environment
- Sensory Processing Disorder interferes with playing
- Test of Playfulness (ToP) scores were significantly lower than those of peers who were typically developing (Bundy, 2007)
- Boys with SPD engaged in less social play outdoors Based on results from study with Preschool Play Scale (Bundy, 1987)



Things to consider (Kawar, 2005)

- If you don't think it is going to feel good to you, it's not going to feel good to them!
- Work with caution, gradual increase
- Look with "OT eyes"
- Remember that stimulation is cumulative!
- Consult with an OT

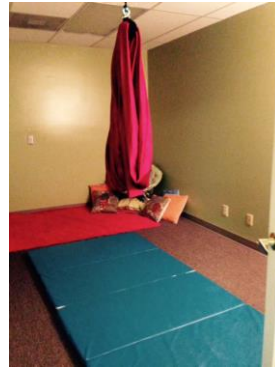
Targeting Auditory Processing

SEEKERS	NON-SEEKERS	BLENDERS
May talk loudly May needs loud sounds to make responses	Defensive Sensitive Physical response to sound Limited response to sound	Combination of defensive and seeking Filtration delays Processing and output delays

Targeting Visual Processing

SEEKERS	NON-SEEKERS	BLENDERS
Fixating Self-stimulatory behaviors Seek out loud, bright visual engagement	Compressed visual attention Difficulty navigating with obstacles Decreased maintenance of direct eye contact Unable to tolerate flickering lights	Easily distracted Impulsive Inconsistent sensitivity to light

Therapy room



Addressing Taste and Olfactory

SEEKERS	NON-SEEKERS	BLENDERS
Prefer spicy, hot sour foods Stuff mouth Grind teeth Vocalizations while eating Mouth inedible objects with taste, such as Playdoh	Picky eaters Do not like textures, multi-textures/temperatures Object to strong odors of food Unaware of strong odors May gag often while eating Unaware of strong odors/tastes	Seen less often, but may have a combination of over-responsive, under-responsive and/or seeking behaviors based on various tastes and odors.

Addressing Tactile Processing

SEEKERS	NON-SEEKERS	BLENDERS
May touch and feel as much as possible Appears impulsive Crams mouth with food Hands in mouth Chews on clothes Disregards personal space Loves messy play	Tactile defensiveness Avoids being near others Typically avoids passive, unexpected light touch Aversive to seams, tags, etc. May flee from contact from messy activities Uses whole body to engage in tactile input Does not oppose rough-housing Disregards touch Picky eaters Gags in feeding tasks	Fluctuator "Like two sides to a coin"

Tactile processing and speech/language (Kranowitz, 2005)

- Babies depend on touch to make contact with the world
- As contacts expand, so does a baby's exposure to auditory commentary
- Poor tactile awareness of oral mechanism
- For academic learning, tactile processing difficulties could affect classroom participation

Vestibular and Proprioceptive working together

- Sensation of head and body position with motor control
- Somatosensory: Receiving input with body awareness
 - Muscle Tone: Degree of tension at a resting state, based on normal movement patterns
- Bilateral Coordination: Coordination of both sides, crossing midline, trouble to body transitions
- Praxis: Motor Planning, ability or conceptualize, organize, realize and respond.
- Deficits in vestibular/proprioceptive input could make learning a new skill difficult

Targeting Vestibular and Proprioceptive

SEEKERS	NON-SEEKERS	BLENDERS
Movers –enjoys constant movement "On the go" Risk takers High tolerance to pain Decreased safety awareness Enjoy running, jumping, crashing, falling	Gravitational insecurity Avoid movement activities May experience nausea or excessive dizziness Exceptionally clingy Avoid risk taking	May or may not recognize movement Inconsistent body awareness Easily fatigued "Light switch is on or light switch is off"

Quick Reference

Elements	To Calm	To Alert
Visual	Soft Neutral Colors Room Dividers	Bright Colors
Auditory	30-60 BPM White Noise Sing Song Reduce rate of speech model	90+ BPM High Intensity Music
Vestibular	Rhythmical/Linear Movement Slow rocking	Dysrhythmic/fast paced Rotary (use with caution!)
Tactile	Massage Therapeutic Brushing Deep Pressure Wrap ups/nesting	Light touch Cold temperature
Oral	Suck Vibration Slow , rhythmic breathing and blowing	Crunchy/Chewy Cold Temperature
Proprioceptive	Resistive activities/heavy work	Fast-paced body positions

Environmental Modifications

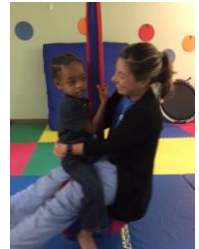
- Create a sensory safe environment
 - Lighting and color
 - Decrease clutter
 - Decrease extraneous noise
 - Filter out irrelevant stimuli (adding functional background noise, such as soft music)
 - 30-60 bpm (promotes de-stressing and relaxation)
 - "Cozy Corner"
 - Scents/odors (**Lunchrooms at school)
 - Be emotionally sensitive
 - Having your sensory tool kit ready
- Provide structure
 - Sensory Breaks/Visual schedules
 - Chairs and posturing



In Summary... Your space, their space

Environment where you are introducing your intervention

- Postural stability
- Free of Distractions
- Structure with materials—simple through complex
- Lighting
- Safe Space—Physically and emotionally
- Soft and hard surface exposure
- Accessible



REFERRAL TO OT

- Occupation=any activity or task that fills your day
- For children→ play, school, social engagement
- OT addresses skills beyond the table (just the fine motor tasks)
 - **Sensory processing**
 - Behavior
 - Academics
 - Self help
 - Gross motor skills

In layman's terms, we are looking at attention, arousal and behavioral follow-through. If we cannot maintain optimal arousal and attend, we cannot learn. If we cannot learn, we cannot progress.

Some red flags

- Runs and FALLS to therapy (crashing, stumbling)
- Can't sit still
- You are a broken record. Cannot focus/follow directions ☹
- Won't stop crying/rollercoaster of emotions
- Aggressive towards self or others
- Falling out of chair, rocking in chair, rounded posture
- Fingers in mouth/nose
- Leaning on walls
- Fleeting attention to task
- Auditory defensiveness
- Rough-houser
- Tactile defensiveness

Some Red Flags

- Dx. of CAS may indicate more global dyspraxia, but not always (see below)
- Dyspraxia=brain based condition that makes it hard to plan and coordinate movement; children with dyspraxia tend to struggle with balance and posture and they may appear clumsy or out of sync with their environment. It can affect the development of gross motor skills, fine motor skills, and mouth/tongue movements.
- Fine motor/visual motor deficits
 - Grasp patterns
 - Scissor skills
 - Bilateral hand skills
 - Identification and recall of letters/spelling

Questions to ponder

- **What does it look like in a speech therapy session?**
- **How does it impact the session?**
- **What can I do to help?**
- **Would OT benefit the child FIRST then integrate speech therapy?**
- **Would OT co-treatment be beneficial therapeutically?**

INTERVENTION

Interventions to Calming and/or Organizing

Activities to Promote Organization:

- Brushing
- Joint compressions
- Massage/Hugs
- Heavy work: pushing, pulling, weight bearing activities
- Low lighting
- Slow rhythmic music
- Blowing or sucking activities: bubble blowing, whistles without high pitch sound, drinking heavy liquids like milkshakes, Jell-o and applesauce
- Sandwich: safely squeeze child between two cushions
- Sleeping with a heavy blanket
- Slow rhythmic rocking
- Eating crunchy foods
- Allow "break" times during the day or when requested by the child



Interventions to Alert/Arouse

Always observe arousal levels and follow by organized calming before engaging in "work"

- Run, Jump, Crash, Fall
- Rotary Swinging: Review and Understand Precautions
- Linear Swinging: Changing Positions on Swing
- Bright Lighting
- Music with Bass

Interventions for attention and behaviors:

- Linear, Organized Swinging
- Instrumental Music 60-90 bpm
- Low/Adequate Lighting, decrease artificial lighting
- Air Disc
- Feet prop/Tailor Sit/Kneel/Nest
- Picture Schedule/Social Stories
- Timer
- Establish Rules/Boundaries for Therapy (repetition)

Interventions for attention and behaviors:

- Facilitates greater understanding and comprehension
- Visual pictures can make abstract verbal concepts more concrete.
- Remains stable over time
- Provides more powerful means to engage attention



Source: Baker, Jed. *The Social Skills Picture Book: Teaching Play, Emotion and Communication to Children with Autism*. (2001). Future Horizons, Arlington TX.

Interventions to Improve Auditory Processing

- Category, Alphabet, Phonemic Awareness Activities (with and without movement)
- Filtering noise or music
- Headphones
- Visual Imagery
- Visual Schedules
- Social Stories/Prep Routines

Sound and Music Programs

- Sound Therapy
 - Sound stimulation
 - Audio-vocal activities
 - Consultation
- Heightening music 🗣️
- Inspiration music 🗣️
- Relaxing music 🗣️



Interventions to Improve Body Awareness

- Clapping/Dancing to beat of music: Heavy Base/Core
- Catching or tossing a ball or balloon
- Cross Crawls
- Jumping Jacks
- YOGA
- Heavy Work: CHORES! Re-Arrange Room, Move People, Objects
- Sitting on unstable surfaces: pillows, balls, Air Discs
- Tall kneeling or quadruped positions
- Cross Midline Activities
- Jump Crash Run Fall Squeeze
- Wrap-Ups/Hot-Dog/Roll Ups
- Swing
- Laying Prone
- Get Your Core On!
- Animal Walks

Sensory Intervention—What it is and what it isn't

What it is...	What it isn't...
Enrichment	Stimulation
Child-directed and relationship based	Therapist-directed
Playful, flexible, trusting	Curriculum-based
Active	Passive
Problem-solving, experimental, exploratory	Verbally directed

Just Right Fit: Think about matching the child's needs and abilities with their sensory environment.

The Sensory Diet

Sensory Diet: Individual activities that can be planned into a child's day so that they are successful and are able to participate in their environment without over stimulation.

Sample Sensory Diet

Morning:

- Promote organization to get ready for work
- Brushing program
- Joint compressions
- Heavy Work Activities: Deep Pushing/Pulling, where the muscles do "work"
- Use pictures with Velcro that can help schedule or organize the tasks for the day (picture of clothes for dressing, toothbrush following for toothbrush etc.)
- Pillow Sandwich, Jumping into pillows, Cocoon/Taco wrap up (like a mummy in sheet or blanket)
- Music at tempo 60-90 beats per minute when sitting

Tabletop activities:

- Allow for frequent breaks especially when nothing over arousal
- Writing on a vertical surface (also helps with upper extremity strength)
- Use a timer or other visual denote how long the child should be sitting and completing the task with a reward to follow.
- If timer does not work use a number, "we have to do this three times" before it is done.

Sample Sensory Diet

Mealtimes:

- Try to include in set up
- Have her push in chairs (heavy work)

Bedtime:

- Bath
- Slow music (tempo 30-60bpm) Low lighting
- Brushing Joint Compressions
- Hugs and Massages
- Sleeping with heavy blankets or body pillows
- Lavender smells (if not allergic)
- ABT: (you can download on iTunes: Music to De-Stress, Music to Relax,
- Music on Amazon (via CD) Happy Baby, Peaceful Baby

*These activities can be completed daily when monitored by an adult. Brushing should be completed up to three times a day and followed by joint compressions. Weight bearing activities can be completed daily for strengthening.

Vestibular input

- Two types of vestibular receptors reside in labyrinth of the inner ear → Gravity sensing receptors & movement sensing receptors
- Very sensitive to change
- Children's responses to vestibular input are highly variable
- To impose vestibular stimuli on a child who cannot modulate or tolerate this type of activity can be physically and emotionally harmful
- Keep in mind whether the child is a seeker of vestibular input, a non-seeker or a combination of both



Precautions



Precautions



- **ALWAYS** with adult supervision
- **ALWAYS** read child's arousal levels/limits: Avoid Sensory Overload/Sensory Over Arousal
- **ALWAYS** ask caregiver if easily "dizzy" or easily Motion Sick: Flush/color changed, Nausea or complaints of stomach discomfort
- **ALWAYS** clear with Doctor if child has history of Seizure activity or TBI
- **DO NOT** use Rotary input if clients have seizures with photic-evoked seizure activity (visual induced)
- **KNOW** that 15 minutes of Vestibular input can impact a child for up until **6-8 hours later!**
- Rotary Input **SHOULD ALWAYS** be reviewed with an Occupational Therapist (especially one who understands and completed sensory intervention)

Precautions



- SPINNING **ALWAYS NEEDS** to be supervised and controlled
- SPINNING (Rotary Input) is a **POWERFUL** intervention and if not correctly administered, it could impact the rest of your session or day! Can lead to meltdowns
- **ALWAYS FOLLOW ROTARY INPUT WITH soothing, slow, organized linear input or deep proprioceptive input**
- Rotary input **SHOULD** always be completed in short organized bouts (think one second per rotation) stopping after 10 rotations to each side
- **KNOW** your Rotary Protocol: Some include eyes closed (can lead to more reflexive eye movement) PRN (the more PRN the "dizzier" the child feels.
- **ALWAYS** think SAFETY FIRST: Mats, Pillows, Hands on Swing, Space/Environment child is Swinging in
- **ALWAYS** clear with administration if working in a School Based Setting

Core practice

- Engaging core musculature
 - Achieve deeper respiration
 - Increase strength and endurance
- GOAL→ Activate core to develop deep muscle engagement that provides support around the center and vertical axis of the body
 - Head/neck, lungs, diaphragm
- Improve postural strength, improve breath support, and provide optimal functioning to complete a task
- Provides continuous and coordinated breath flow and support

Frick, Sheila & Kavar, Mary; Core Concepts in Action (2004) Vital Links, Madison, WI

Four Stages of Development of Antigravity Movement

- Mobility
- Stability
- Mobility Superimposed on Stability
- Skill

Core practice

When we activate the core, we activate the center of the body. When we are “centered”, we are alert and we can learn.

Yoga, Visual Imagery, Mindfulness

Yoga

- Self-directed practice of relaxing the body and calming the mind
- Traditional, active approach to learning about “you” by using a blend of breathing, movement and positive mindful techniques
 - Breathing= to establish centering, calming, relaxation
 - Movement=exercise that can assist in regulation of the nervous system, development of flexibility, strength, endurance and balance
 - Mindful techniques=positive, calming ways of thinking (A.K.A. meditation and calming of the body)

Visual Imagery

- Imagining the workings of one’s own body or inner experiences to encourage healing and well-being

Mindfulness

- Could involve taking a comfortable position in a quiet environment, regulating breath and having a physical relaxed and mentally calm attitude while maintaining focus on a mental image or word

Supporting Therapeutic Goals

- Promotes self-monitoring (arousal levels), self-advocacy
- Stress reduction, calming, “ready body”
 - Challenges or threats facing the individual exceeds his or her estimated coping resources
- Auditory processing and dual tasks
- Social pragmatics and engagement



In closing...

- It all fits together.
- “...No child ha(s) a pure language disorder or only academic learning problems without any involvement of sensory systems—auditory, visual, somato-sensory, or all three” (Kruger, et.al. 2001).
- We must integrate the senses in a delicate balance in order for effective communication and acquisition of new skills to occur.

Who We Are

**Jessica Matheson,
MSP, CCC-SLP**

Jessica Matheson received her Master's Degree in Speech-Language Pathology from the University of South Carolina in 2004. She has provided speech and language therapy in a variety of settings including public schools, skilled nursing facilities, and private clinics. Jessica is CASANA recognized for advanced training and expertise in Childhood Apraxia of Speech. She has been trained in Interactive Metronome, Kaufman Speech to Language Protocol, Brain Gym and other programs for fluency and phonological awareness.

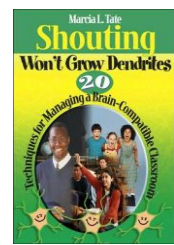
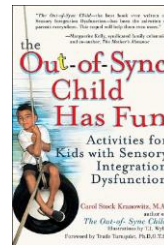
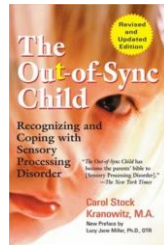


Jessica and Christine are practitioners at Therapy 360, a private practice based out of Greenville, SC.

**Christine Todaro,
MS, OTR/L**

Christine Todaro received her Master's in Occupational Therapy in 2003 from Thomas Jefferson University, after obtaining her sports medicine degree from Lynchburg College. Christine holds additional certifications in Interactive Metronome, Therapeutic Listening and Saebø Orthosis. In 2012, Christine received her RYT certification as a Yatra Yoga Instructor. Christine enjoys her daily yoga practice which she incorporates therapeutically into treatments to improve arousal levels, calmness and overall strengthening of the

Books worth checking out:



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