

Tuesday, 10:00 – 11:30, A3

## **Targeting Student Engagement Through Sensory-Based Strategies**

**Christy Yee**

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### **Objectives:**

Develop strategies to promote community inclusion in meeting the needs of persons with developmental disabilities

Understand sensory processing.

Understand how sensory processing differences can present in children.

Understand tools and techniques to assist all children to attend to learning in the classroom.

### **Notes:**

# Adult Sensory Questionnaire

(Adapted From: Angie Voss, OTR - ASensoryLife.com)

Movement (Vestibular)	Check All That Apply to You
Get up and down often while working or shift positions a lot	
Tilt back on two legs of the chair	
Prefer a swivel and leaning back type chair or ball chair	
Enjoy running, jogging, biking, and other movement based sports	
Roll neck and head around when stationary	
Prefer to stand while working or reading	
Prefer rocking chairs or gliders	
Love to swing	
Always moving, prefer to move rather than sit	
Very fidgety while seated	

Deep Pressure (Proprioceptive)	Check All That Apply to You
Enjoy housework or certain housework tasks (e.g. vacuuming)	
Enjoy gardening	
Enjoy yoga	
While seated/standing frequently tap toe, heel, foot	
Like lifting weights and other hard work activities	
Frequently cross your legs when seated	
Frequently tap your pen or pencil	
Often twist or stretch your body	
Love cozy heavy blankets	
Love massages	
Tend to lean on furniture or other available objects when standing	
Enjoy wrestling and rough housing	
Love tight and cozy spaces	
Love to cuddle	
Love big squeezes and hugs	
Cracks knuckles and joints	
Tendency to clench jaw	
Need heavy blankets or being tightly tucked in to sleep well	

Touch (Tactile)	Check All That Apply to You
Love light touch/tickle	
Enjoy it when someone plays with or brushes your hair	
Twist and twirl your own hair	
Scratch, rub, and pick at your own skin	
Love to pet animals	
Seek out new or certain textures of clothing, fabric on furniture, or pillows	
Click pens, play with paper clips	
Always like something in your hand to fidget with (e.g. knitting)	

Auditory	Check All That Apply to You
Enjoys listening to music	
Whistle or hum while you work	
Prefers a quiet/calm space to attend to a task	
Needs background noise to work	
Tap objects or fingers, hands, toes to a certain beat	
Seeks out white noise (i.e. fan on to sleep)	

Visual	Check All That Apply to You
Enjoy watching water features, fountains, lava lamps or other similar	
Find fish tanks soothing	
Prefer a very tidy space in order to work	
Very organized, dislike clutter	
Find certain colors very soothing and calming	
Prefer things to match just right in color	
Avoid visually clutter/disorganized stores	
Something out of place or out of sort bothers you	

Oral (Gustatory)	Check All That Apply to You
Bites fingernails	
Make clicking sounds or other mouth sounds	
Loves to chew gum	
Chews on own hair or pen or something else while working	
Loves crunchy or chewy snacks	
Craves salty or spicy foods	
Enjoy drinking through a straw or other resistive type lids	
Bite inside of cheeks or chew on tongue	
Always moving your jaw around	
Smoke cigarettes	
Clear throat often	
Lick lips often	
Tendency towards emotional eating	

Smell (Olfactory)	Check All That Apply to You
Enjoy essential oils	
Love scented candles	
Love perfume	
Smell clothing and other fabric type objects	
Enjoy air fresheners	
Love scented markers and erasers	
Love smelling flowers and things in nature	
Love smelling different foods	



## Self - Questionnaire

If you have not already done so, please complete the Adult Sensory Questionnaire!



## Targeting Student Engagement Through Sensory-Based Strategies

Presentation by  
Christy E. Yee M.A. OTRL  
April 18, 2017

## Who Are You?



## Christy E. Yee M.A. OTRL

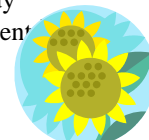
- Graduated Bachelor of Science in Occupational Therapy in December of 1996
- Received specialty certification in Sensory Integration and Praxis Testing (SIPT) in January 1998
- Received Master Degree in Schools, Society, & Violence in December of 2009
- Worked in both private pediatric clinics and public schools for the past 20 years including 11 years with the University of Michigan FASD Clinic
- Part-Time Lecturer at Eastern Michigan University in the OT program since January 2012

## OBJECTIVES

1. Develop a preliminary understanding of sensory processing and current terminology.
2. Understand how sensory processing differences can present as behaviors in children.
3. Understand tools and techniques to assist all children to attend to learning in the classroom.

## What is Sensory Integration?

- Jean Ayres, Ph.D., OTR, the originator of the theory of sensory integration defines it as “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”



## Dysfunction of Sensory Integration (DSI):

- DSI is “a malfunction in the brain’s translation of sensation into meaning and action... It is a traffic jam in the lower brain. Important information that needs four-lane access to the thinking centers of the brain, like the awareness that you’re about to lose your balance, can’t get through. Other information that should be diverted into a parking lot, like the feeling of a shirt tag rubbing against your neck, gets full attention, creating havoc and confusion.” (from “The impossible Child” by Karen Smith).

## Evolution of Language:

- Sensory Integration Dysfunction (SID)  
to
- Dysfunction of Sensory Integration (DSI)  
to
- Sensory Processing Disorder (SPD)

## Sensory Processing

- Sensory Processing is the way the nervous system receives sensory messages and turns them into responses.

■ Information from “Sensational Kids: Hope and Help for Children with Sensory Processing Disorder” by Lucy Jane Miller, Ph.D., OTR

## Sensory Processing Disorder (SPD)

- Disorder exists when sensory signals do not get organized into appropriate responses and a child’s daily routines and activities are disrupted as a result.

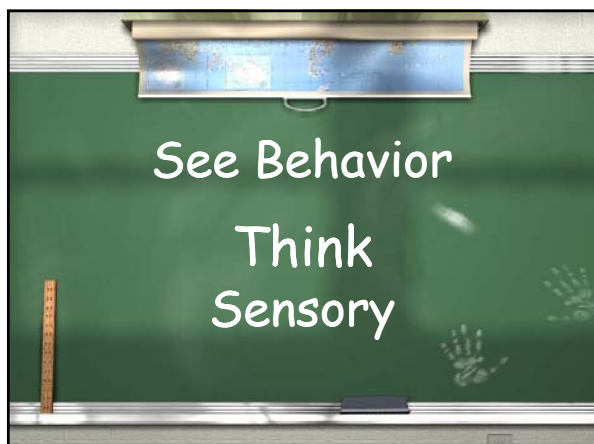
■ Information from “Sensational Kids: Hope and Help for Children with Sensory Processing Disorder” by Lucy Jane Miller, Ph.D., OTR

## Sensory Processing Disorder

- Sensory Modulation Disorder: Over-Responsive (sensory defensive); Under-Responsive (withdrawn); Sensory Craving (crash and burn).
- Sensory-Based Motor Disorder: may look clumsy or take longer to learn new/novel motor tasks. (Low-Normal Muscle Tone)
- Sensory Discrimination Disorder: What do I pay attention to?

## Just the Facts!

- “Sensory processing disorders affect 5 to 16 percent of school-aged children.” July 2013 University of California San Francisco study: <http://www.ucsf.edu/news/2013/07/107316/breakthrough-study-reveals-biological-basis-sensory-processing-disorders-kids>
- “That is more than 1 child in every classroom. Typically these children are misdiagnosed with ADHD... or they are not diagnosed at all... instead an assumption is made that the child has ‘bad’ behavior.” <http://www.prweb.com/releases/2013/7/prweb10916911.htm>



### Signs & Symptoms of SPD

Infant & Toddlers	Pre-Schoolers
<ul style="list-style-type: none"> <li>• Problems with eating/sleeping</li> <li>• Irritable when being dressed and/or uncomfortable in clothes</li> <li>• Rarely plays with toys</li> <li>• Resists Cuddling (may arch away when held)</li> <li>• Cannot Calm Self</li> <li>• Floppy or stiff body</li> <li>• Motor delays</li> <li>• Refuses to go to anyone but one person</li> </ul>	<ul style="list-style-type: none"> <li>• Over-sensitive to touch, noise, smells, and/or people</li> <li>• Difficulty making friends</li> <li>• Difficulty dressing, eating, sleeping and/or toileting</li> <li>• Clumsy, poor motor skills, weak</li> <li>• In constant motion</li> <li>• In everyone else's space</li> <li>• Frequent or long temper tantrums</li> <li>• Appears inattentive to others</li> </ul>

[www.askmeaboutspd.org](http://www.askmeaboutspd.org)

### Signs & Symptoms of SPD

Grade School Age	Adolescents & Adults
<ul style="list-style-type: none"> <li>• Over-sensitive to touch, noise, smells, and/or people</li> <li>• Easily distracted, fidgety, craves movement</li> <li>• Aggressive</li> <li>• Easily Overwhelmed</li> <li>• Difficulty with Handwriting or motor activities</li> <li>• Difficulty making friends</li> <li>• Unaware of pain or other people</li> <li>• Appears inattentive to others</li> </ul>	<ul style="list-style-type: none"> <li>• Over-sensitive to touch, noise, smells, and/or people</li> <li>• Poor self-esteem; afraid of failing at new tasks</li> <li>• Lethargic and slow</li> <li>• Always on the go; impulsive; distractible</li> <li>• Leaves tasks uncompleted</li> <li>• Clumsy, slow, poor motor skills or handwriting</li> <li>• Difficulty staying focused</li> </ul>

[www.askmeaboutspd.org](http://www.askmeaboutspd.org)

## How Many Senses Do We Have?

### Sensory Systems

#### What does the SPD look like?

**Auditory**

- Indicators of Auditory deficits: may cover ears to close out sounds or noises, may complain about noises, especially those with a vibratory element (vacuum cleaner, blender, dishwasher), may have trouble functioning when outside noises are present, may make noise themselves to help filter out background noise.

**Visual**

- Indicators of visual deficits: may become over-excited when there is too much to look at, may cover eyes, may have poor eye contact, may have problems with reading and/or writing.

**Touch**

- Indicator of tactile deficits: may hurt themselves (e.g. bite themselves), may interpret light touch as painful, may disrobe, may dislike getting dirty, may dislike routine grooming activities.

### Smell

- Indicators of Olfactory deficits: may object to certain odors that others don't notice, may seek out noxious odors, may use the sense of smell as means to explore the environment

### Taste

- Indicators of taste deficits: may strongly object to certain foods, textures, or temperatures, may have an overactive gag reflex, may lick or taste inedible objects

### Vestibular

- The vestibular system receives input from receptors located in the inner ear regarding position and movement of the head in relationship to gravity. This sense tells you where your head is in relation to the ground.



### Indicators of Vestibular Deficits

- May crave movement
- Unable to sit still
- May dislike having feet off the ground
- May become car sick easily
- May rock in both sitting and standing
- May flap bilateral hands by face



### Proprioceptive

- The proprioceptive system gives the nervous system input on the position of muscles, joints, and tendons. This is important as it provides the person with information on how far to reach, how much pressure, where you are in space, and what your body scheme is.



## Indicators of Proprioceptive Deficits

- May appear clumsy or awkward
- May present with stiff and uncoordinated movements
- May avoid sports activities
- May hang on others
- May hurt themselves or others
- May chew on non-food items

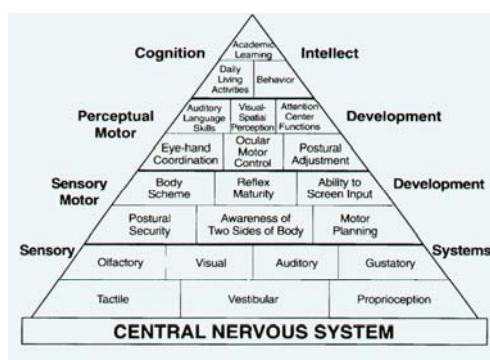
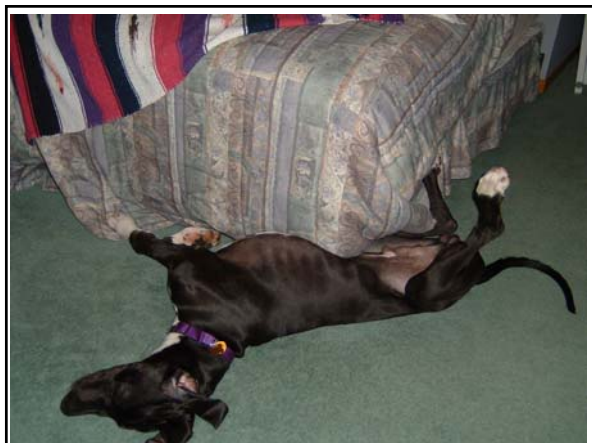


FIGURE 6.10. Sensory and Motor Development (Williams & Chaffin, 2008, p. 14)



## Why We Have Sensory Preferences!

- You engage in activities that allow you to maintain the calm, alert state you need to function.
  - Vestibular – sets your arousal level
  - Proprioceptive – increases the levels of the neurotransmitter serotonin (aka Master Modulator or Mood Stabilizer).
  - Tactile – can calm or alert (a mosquito or a hug)
  - Auditory – runs on same pathway as vestibular
  - Visual – can calm or alert (tidy vs clutter)
  - Oral - organizing
  - Smell – pathway to memories and emotion





## Self - Questionnaire A Closer Look

## WHAT WORKS FOR CHILDREN WITH SPD IS GOOD FOR ALL CHILDREN

### Evidence Based Practice (EBP) Supporting Movement – Utilizing Vestibular & Proprioceptive Inputs

- Fidgeting May Benefit Children with A.D.H.D. (2015) – Gretchen Reynolds
- [http://well.blogs.nytimes.com/2015/06/24/fidgeting-may-benefit-children-with-a-d-h-d/?\\_r=0](http://well.blogs.nytimes.com/2015/06/24/fidgeting-may-benefit-children-with-a-d-h-d/?_r=0)
- “Children with A.D.H.D. concentrate much better when they fidget than when they don’t.”  
<http://www.ncbi.nlm.nih.gov/pubmed/26059476>
- “Hyperactivity appears to be a mechanism for... self-regulation.”

### EBP Supporting Movement – Utilizing Vestibular & Proprioceptive Inputs

- The Benefits of Movement in Schools (2015)
- [http://www.creativitypost.com/education/the\\_benefits\\_of\\_movement\\_in\\_schools](http://www.creativitypost.com/education/the_benefits_of_movement_in_schools)
- “Regularly-scheduled movement breaks throughout the day and movement used within and between lessons results in better-behaved, more engaged students who can more easily focus on and retain what they are supposed to be learning.”

### EBP Supporting Movement – Utilizing Vestibular & Proprioceptive Inputs

- “Where Sitting Still Isn’t Encouraged” Dr. Carolina Blatt-Gross (2014)  
[www.cnn.com/2014/03/30/living/no-sitting-still-movement-schools/index.html](http://www.cnn.com/2014/03/30/living/no-sitting-still-movement-schools/index.html)
- Movement is the Key to Learning – John Hopkins School of Education  
[education.jhu.edu/PD/newhorizons/strategies/topics/Arts%20in%20Education/gilbert.htm](http://education.jhu.edu/PD/newhorizons/strategies/topics/Arts%20in%20Education/gilbert.htm)

### EBP Supporting Movement – Utilizing Vestibular & Proprioceptive Inputs

- Responsive Classroom – Movement Breaks & Energizers [www.responsiveclassroom.org](http://www.responsiveclassroom.org)
- Teaching with the Brain in Mind by Eric Jensen –Chapter 4. Movement and Learning
- Movement And Learning – Research:  
[movementandlearning.wordpress.com/about/](http://movementandlearning.wordpress.com/about/)

## Guidelines

- / Tools/strategies are the most successful when they provide "more" of the input the student is seeking
- / Only look to replace behaviors that interrupt the learning process or pose a safety risk to self or others

## The Rules

- / Introduce the tool or strategy as a "Teaching Tool" not a toy.
- / Teach correct use and set clear expectations: This cannot stop your learning or the learning of others
- / Provide 3 chances (kids make mistakes); if they lose it 3 times, probably not the right tool.

### Increasing Student Engagement Tools & Techniques

- Vision
  - Maximize natural lighting
  - Minimize visual clutter
  - Add light filters (white recommended)
- Auditory
  - Add environmental music or white noise to block extraneous sounds
  - Have headphones available (do not need to be plugged in to anything)
  - Minimize wording of directions

### Increasing Student Engagement Tools & Techniques

- Tactile
  - Make fidgets available
  - Add tactile components to interactive learning
- Olfactory
  - Avoid wearing perfume
  - Avoid scented laundry detergents, lotions, and soaps.
- Gustatory/Oral Motor
  - Provide food/non-food items to chew on (swizzle sticks, gum) & water bottles

### Increasing Student Engagement Tools & Techniques

- Proprioceptive
  - Utilize Sit-N-Move cushions, beanbag chairs, foot fidgets
  - Allow for movement (give a helping job)
  - Provide heavy work activities
  - Add "energizers" (Responsive Classroom)

### Increasing Student Engagement Tools & Techniques

- Vestibular
  - <https://www.gonoodle.com/home>
  - <https://brain-breaks.com/>
  - Provide exercise or stretching breaks
  - Play movement games that include imitation of head movements
  - Add a rocking chair, standing desk, balance board
  - Increase break times (recess, free play)
  - Allow freedom of movement

## + CONCLUSION

Remember to always honor the child's sensory processing limitations and work toward broadening the sensory processing range within acceptable activities.

## + Good Books

- *Raising a Sensory Smart Child: The Definitive Handbook for Helping Your Child with Sensory Integration Issues* by Lindsey Biel & Nancy Peske
- *Sensational Kids: Hope and Help for Children with Sensory Processing Disorder* by Lucy Jane Miller & Doris A. Fuller

QUESTIONS?