Course Objectives

- Review basic nervous system and how it relates to attention and arousal
- Define sensory processing and integration
- Gain knowledge of registration, modulation and alert levels
- Learn to incorporate sensory strategies and movement activities throughout the day.
- Learn to identify ways to set up the classroom environment for optimal arousal and attention.
Remember........

"Normal" is just a setting on a washing machine.
5 Senses..... is that all?

- Vision
- Hearing
- Touch
- Smell
- Taste

- Vision
- Hearing
- Touch
- Smell
- Taste

- Vestibular
- Proprioceptive
Sensory information from the vestibular receptors in the inner ear informing the brain about head position, movement and gravity. Vestibular information influences balance, muscle tone, and coordination.
Sensory information from the muscles and joints informing the brain about the position of the body parts and the amount of force being exerted. Proprioceptive input judgment regarding how much force is necessary during a physical activity.
Sensory Processing

The ability to accurately register/perceive, and modulate sensory input from each of our sensory systems.
Typical Sensory Processing

What Bicycling Feels Like...

Every-Single-Time!
Signs that a student may have Sensory Processing Deficits

- Overly sensitive to touch, movement, sights, or sounds
- Under reactive to touch, movement, sights or sounds
- Easily distracted
- Social and/or emotional problems
- Activity level that is unusually high or unusually low
- Physical clumsiness or apparent carelessness
- Impulsive, lacking in self-control
- Difficulty making transitions from one situation to another
- Inability to unwind or calm self
Difficulty with Sensory Processing

BRAIN WITH SPD

this sucks

noise

light

taste

touch

smells
Sensory Integration involves processing sensory input from all of our senses, as well as...

Integration and organizing the sensory information for learning and interacting in the environment.

The brain selects, enhances, inhibits, compares, and associates sensory information.
Typical Sensory Processing/Integration

- Process sensations
- Integrate Information
- Plan actions
- Organize Responses
Students with sensory processing difficulties are hyper sensitive or under-sensitive to sensory input. These difference in sensory processing can be overwhelming, and as a result the child is unable to take part in typical daily activities. The sensory experiences involved in assemblies, lunch room, PE, and even classrooms can result in extreme discomfort and melt downs.
Arousal/Alert Level: A stage of a nervous system describing how one feels. To be able to regulate the nervous system to attend, concentrate, and perform tasks “in a manner suitable to the situational demands.” (William-Shellengerger)

Self Regulation: The ability to attain, maintain, and adjust alert levels as needed.
Top–Down Inhibition and Bottom–Up Inhibition

- **Top–Down Inhibition**: Student uses the brain cortex to try to change alert states.
  - Self talk
  - Visual schedules
  - Verbal reminders
  - Reprimands
  - Time–outs
  - Refocuses
Bottom-Up Inhibition: Proprioceptive input from the body to the brain. Proprioception is the name of heavy work to the muscles and joints. This input has a calming/altering effect on the nervous system. By setting up the environment to include bottom-up inhibition choices we can help the brain regulate alert states.
Sensory Modulation

AROUSAL CHART

Sensory Overload
- Overload or sensory shutdown

Optimal Level of Arousal
- Sensory non-defensive

Low Arousal
- Sensory defensive
- Under responsive or poor registration

Sensory Events Over Time
Hyposensitive
- Decreased response to pain
- Notice touch, but can’t identify location
- Unaware of items dropped
- Poor discrimination
- Poor body awareness without vision
- Disheveled look

How does it look in the classroom?
- Delayed fine/gross motor skills
- Overly explore objects with their hands
- Difficulty with buttoning/snapping/tying
- Difficulty with art, math, writing, cutting
Tactile System

- **Hypersensitive**
  - Pulls away from anticipated touch
  - Responds with aggression to light touch
  - Avoids certain styles and textures of clothing
  - Avoidance of play activities that involve body contact
  - Aversion to grooming tasks
  - Dislikes certain food textures

- **How does it look in the classroom?**
  - Aversion to art materials
  - Picky eaters
  - Unwilling to participate in group activities
  - Pushing/hit those that get too close
  - Difficulty remaining seated
  - Difficulty attending/following directions
  - Difficulty screening out stimuli
Tactile accommodation ideas for the classroom

**Hyposensitive**
- Provide tactile activity before fine motor tasks. Bean/rice bin, putty, playdough
- Teach with tactile mediums. Putty letters, bumpy math manipulatives, shaving cream,
- Hand fidgets
- Clapping or finger songs
- Have student carry something with two hands if he/she is your “toucher.”

**Hypersensitive**
- Never force a student to touch materials
- Present materials inside a gallon ziplock, and they can decide when to open it
- Present tactile mediums that do not stick to hands
- Try letting student touch medium with brushes, popsicle sticks
- Don’t make faces and icky noises when YOU touch it!
- Humans cannot learn when they are in fight/flight!
- Gagging and throwing out of fear is traumatic.
Visual System

- **Visual Processing Difficulties**
  - Sensitive to light
  - Close or cover one eye
  - Squinting
  - Seeing double
  - Bothered by moving objects and people
  - Fatigues easily
  - Difficulty with visual perception active

- **How does it look in the classroom?**
  - Difficulty shifting gaze
  - Tilting head while reading
  - Difficulty tracking along a line of printed words
  - Omits numbers and words
  - Loses place
  - Handwriting difficulties
  - Difficulty with puzzles, cutting, precision activities
  - Letter/word reversal
  - Difficulty aligning math problems, and math symbols
  - Difficulty with prepositional relationships
Visual accommodation ideas for the classroom

- allow student to wear visor or light sunglasses
- Provide colored overlays for reading
- Simplify your classroom and remove hanging art work overhead
- Use study carols and room dividers
- Limit amount of items on a page
- Use file folders with the cover cut in half/thirds to limit/decrease visual info
- Use a visual schedule
- Use a time timer or hourglass
- Provide escort for first day, buddy system
Auditory System

- Auditory Processing difficulties
- Unaware of the source of sounds
- Trouble identifying/discriminating sounds
- Distressed by noises that don’t bother others
- Difficulty with communication and articulation
- Easily distracted by noise

- How does it look in the classroom?
  - Trouble discriminating letter sounds
  - Unable to pay attention to one voice in a noisy room
  - Repeated questions, difficulty following directions
  - Talks off topic
  - Immature sentence structure
  - Looks to others before responding
Auditory accommodation ideas for the classroom

- Minimize Sound Distractions
- Close the door
- Warn students of anticipated noise
- Use sound dampening head phones
- Use head band hearing protectors
- Play calming or rhythmic music
- Play a soft/slow metronome
- Preferential seating, place student away from noise sources (hallway, peers)
- Gain attention before giving directions
Vestibular System

- Vestibular Processing Difficulties
  - Uncomfortable with movement
  - Cautious and slow moving/sedentary
  - Car sickness, dizziness
  - Fearful of heights and being upside down

- Need to keep moving
  - Craves intense movement, thrill seeker
  - Does not get dizzy

- How does it look in the classroom?
  - Wants continual touch or hand holding
  - Fearful of stairs
  - Fearful when moved
    - Teacher sliding students chair closer to the table
  - Plays alone on the playground
  - Fidgety
  - Clumsy/uncoordinated
  - Difficulty staying seated
  - Shaking/rocking/jumping
  - Bouncing/spinning
  - Head on the floor or playing with shoes
Vestibular accommodation ideas for the classroom

- Movement breaks built into the day
- Poster of various movements that are acceptable in classroom
- Alternative seating: move n sit, therapy ball, T-stool, tennis ball rockers
- Provide tall desk or counter to stand and work.
- Use tape on the floor to allow, but also limit movement
- Mini trampoline, swing, rocking chair
- Crawling under/over/through
- Respect fear of movement and heights!
Students tend to know what they need.....
Proprioceptive System

- Proprioception Processing Difficulties
  - Deliberately bump and crash
  - Stomp or slap feet
  - Tapping/drumming
  - Rubbing hands on tables, biting or sucking on fingers, cracking knuckles
  - Prefer shoelaces, hoods, and belts to be tightly fastened
  - Constantly chew on objects
  - Difficulty positioning their body
  - Poor body awareness
  - Frequently break/drop objects
  - Leans on hands
  - Poor posture

- How does it look in the classroom?
  - Crash/tackle into peers
  - Toe walking
  - Drumming on desk/surfaces
  - Chews on objects in the classroom
  - Difficulty with coat and backpack
  - Falling/tripping/bumping into furniture
  - Holds pencils with inappropriate pressure
  - Picks up objects with more or less force than necessary
  - Complains things are heavy
  - Messy work
    - Eraser wholes
    - Crumpled papers
Proprioceptive accommodation ideas for the classroom

- Movement breaks throughout the day
- Recess is a must!
- Gum, crunchy, chewy snacks
- Frequent heavy work throughout the day, pushing chairs, pulling carts, carrying books, re-arrange furniture.
- Chair or wall push-ups
- Brain Gym activities – (Maybe that’s my next class!)
- Theraband
- Weighted vest, weighted lap pad, pressure vest
- Under Armor t-shirts
- Frequent position changes, work in prone, on side, over a pillow, on hands and knees, standing up
Smell and Taste

- Smell or Taste processing difficulties
- Complains about smells
- Extreme picky eater
- Gags or vomits when smelling or tasting new foods

- How this does it look in the classroom?
- Avoids the lunchroom
- Difficulty riding the bus
- Will not try new foods
- Gags or vomits when trying new foods
- Demands the same lunch/snack items
Smell and Taste accommodation ideas for the classroom

- Respect preferences
- Slowly and repeatedly offer new choices
- Rely on parents, they know how long it has taken to get the student this far. By forcing an issue you could set back progress by months or even years.
- Leave your Sensy at home!
- Avoid lotions and perfumes that have a strong scent
- Have a back up plan if the student needs to leave the room due to smells
- Teach appropriate social skills! “Billy smells like a dog” is never okay. “My nose is bothering me, I need to move” is better.
- Student may need a ride to school
Sensory Smart Classroom Ideas

- Sensory Tool Box that all students can access as needed. It will be over used at first and after a few weeks those that need it will still be using it.
- Posters of movement break ideas, or reminders to move.
- Classroom materials in places that require bending, reaching, stretching, getting up.
- Is it possible for students to face forward? Sensory students will do better with their eyes and ears toward the lesson.
- Green is a researched color for task completion and increased serotonin. Table covers, room dividers, paper.
- Nature posters and natural lighting.
- Quiet area for breaks and to re-energize.
OT in the schools.....

- Occupational therapy in the schools is delivered in several ways.
  - Observation followed by accommodation ideas
  - Consult with teacher as needed
  - One or two times a month consult or direct treatment
  - Weekly, or even several sessions a week
  - Student must have a disability to have a 504 Plan
  - Student must score $-1.50sd$ or $-2.00sd$ to be eligible for special education services

- Sensory processing challenges are best addressed through accommodation strategies that happen throughout the school day.
- We do not have the space or (WAC codes) to deliver ethical sensory integration therapy. Parents generally seek additional therapy services in the private sector.
Final thoughts or questions...
Therapy Rooms
References:

Ayres, A. A. J. (1979) Sensory Integration and the Child. Los Angeles: Western Psychological Services


Clemens, C. (2005) Sensory Processing & Integration, Course Outline


More References

References:


Philadelphia: F. A. Davis


"How Does Your Engine Run?" (1992) Therapy Works, Inc. Williams/Sheiikenberger

Murray-Slutsky, C. Behavioral And Sensory Integrative Difficulties in Children-Problem Identification and Intervention

Wilbarger, J. SensoryIntegration in Young Children with Developmental Disabilities
