

MAKING SENSE OF YOUR SENSORY SYSTEM

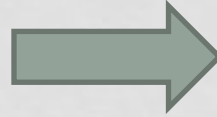
LAUREN MAJESKE - PRESIDENT, FRAGILE X ASSOCIATION OF MI
LINDA NETZEL - OTA FACULTY, MACOMB COMMUNITY COLLEGE
INTERNATIONAL FRAGILE X CONFERENCE - JULY 2014

PRESENTATION OBJECTIVES

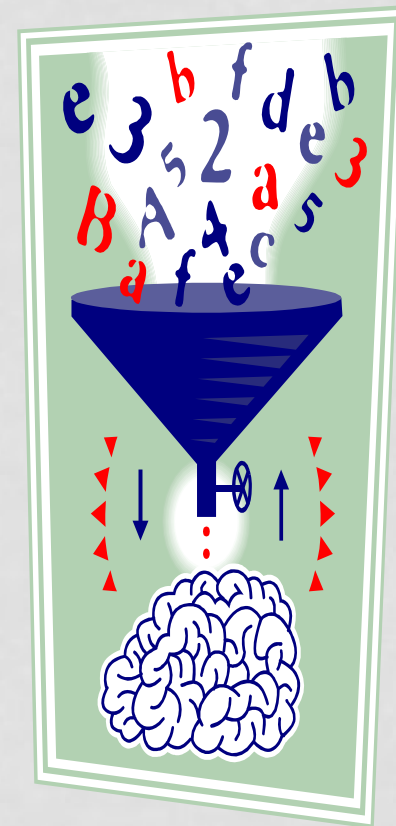
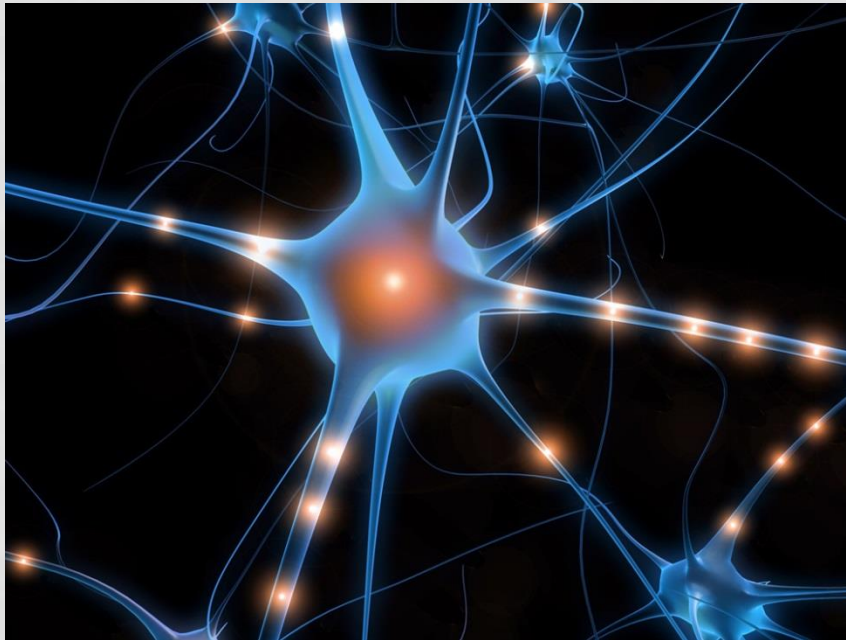
- Define normal sensory processing
- Define sensory processing disorders
- Identify the seven senses that comprise the sensory system
- Discuss interventions specific to each sensory component
- Offer resources for future reference

NORMAL SENSORY PROCESSING

Takes in information from environment



Produces a response



SENSORY PROCESSING DISORDERS

- When the sensory processing is not working properly or inefficiently, the sensory signals do not integrate to provide appropriate responses

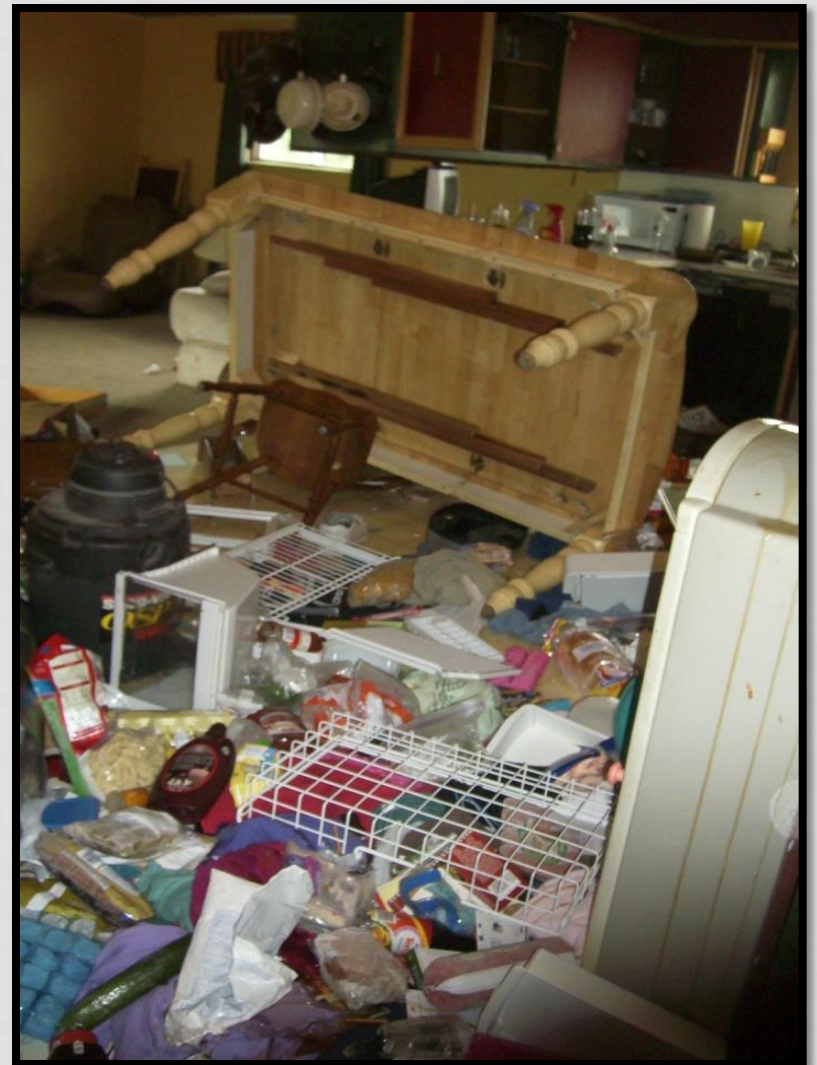


SENSORY PROCESSING DISORDERS



- Sensory Modulation
 - Responses to sensory input may be out of proportion
- Sensory-based Motor
 - Poor balance, strength and endurance
- Sensory Discrimination
 - Differentiate two sources of sensory stimuli

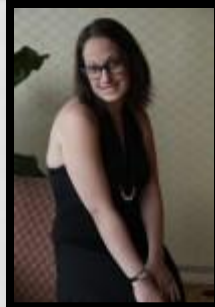
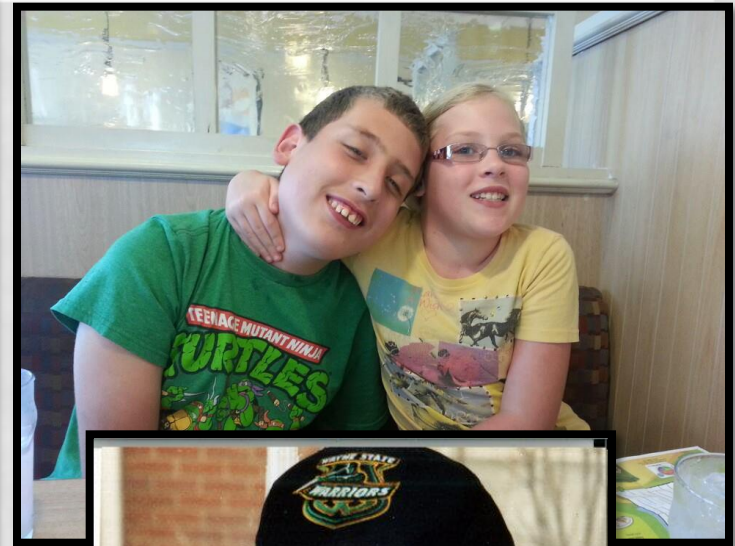
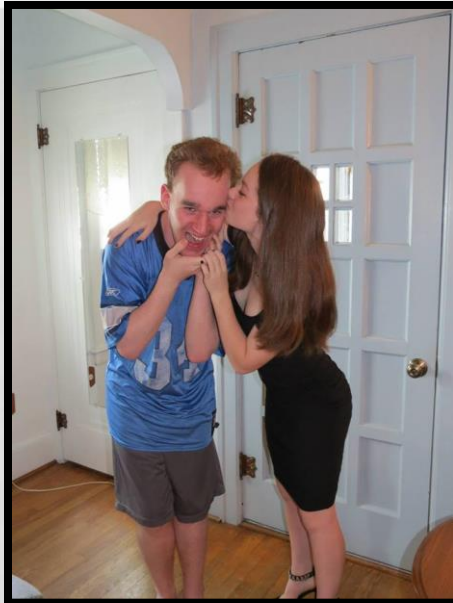
MELTDOWN CITY



LOOK AT THE SUNNY SIDE OF THINGS

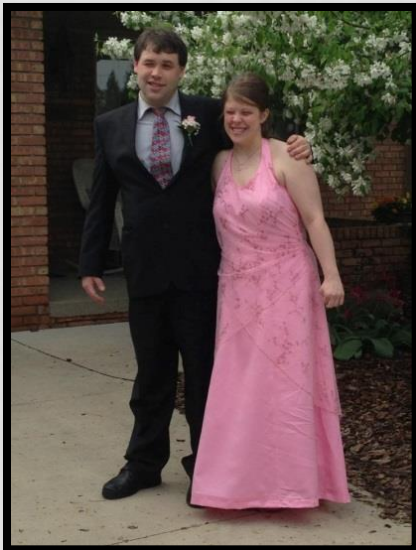


OUR FRAGILE X EXPERTS

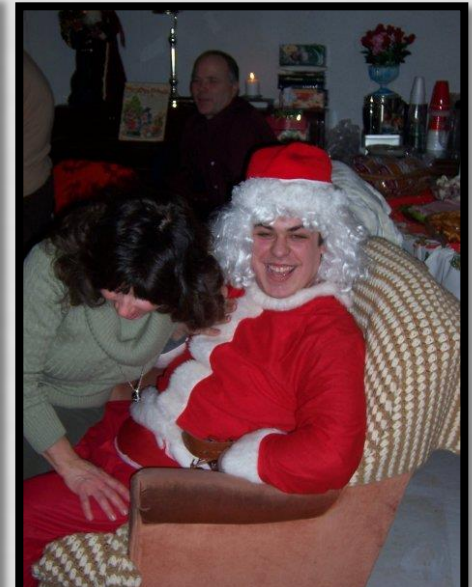
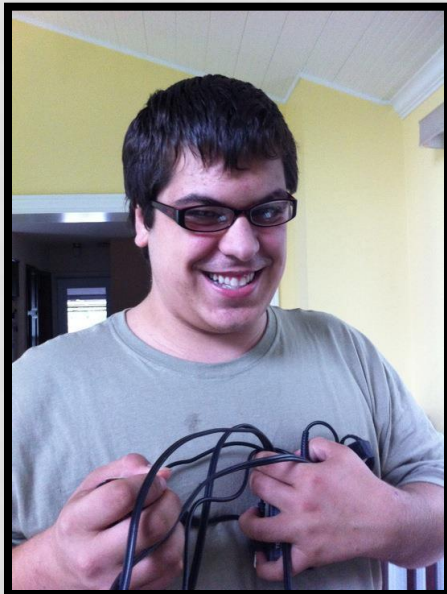




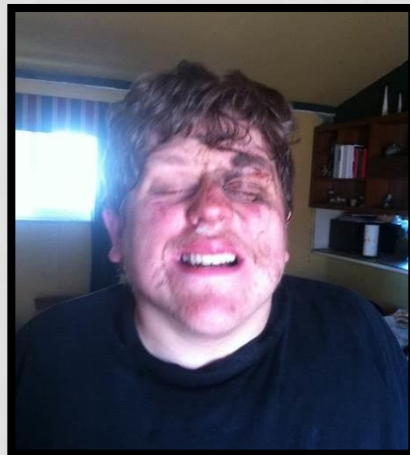
DARIENNE



SHEA

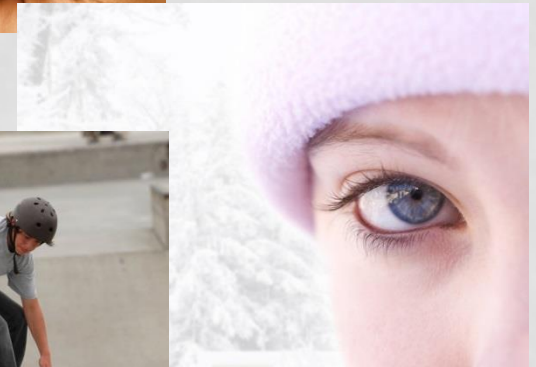


SEAN



SENSORY PROCESSING COMPONENTS

- Auditory
- Visual
- Gustatory
- Tactile
- Olfactory
- Vestibular
- Proprioception



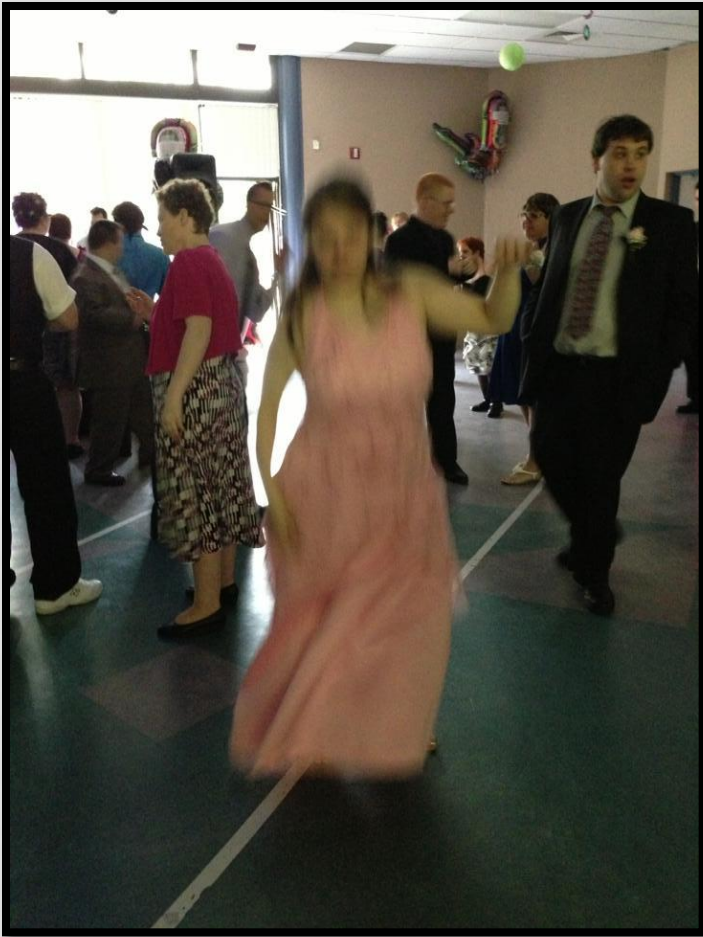
SENSORY PROCESSING DISORDERS

- *What does it feel like?*

AUDITORY PROCESSING

- Auditory Processing - Definition
 - Allows one to hear what is said and process what the words mean and how the words relate to the person and environment
- Auditory Processing Deficits
 - Unable to block out extraneous sounds
 - Difficult knowing what is important to listen to
 - Misinterprets what is heard
 - Hyposensitive to sounds - appears not to hear what is said
 - Hypersensitive to sounds - hands over ears/aggressive or anxious response to sounds
- Auditory Dysfunction - How it impacts daily life
 - Difficulty with self care, home management, play, leisure, education, work, social participation, and sleep/rest
 - Inability to follow multi-step directions
 - Poor expressive and receptive language skills

EXAMPLE



Give Shea a job to do.

EXAMPLE



AUDITORY INTERVENTIONS

Hyper-arousal (calm)

- Offer familiar/expected activities
- Utilize a quiet space
- Utilize slow movements
- Encourage quiet, gentle, melodic, simple sounds
- Provide earplugs or headphones

Hypo-arousal (alert)

- Offer unexpected activities
- Utilize quick, complex, changing movements
- Encourage loud, quick, pronounced sounds

VISUAL PROCESSING

- Visual Processing - Definition
 - Allows one to take in information from the environment through the eyes
- Visual Processing Deficits
 - Lack of eye contact/poor scanning/poor attention to detail
 - Poor visual perceptual skills
 - Visual defensiveness/visual hypersensitivity
 - Lacks personal boundaries
 - Poor eye - hand coordination
- Visual Processing Dysfunction - How it impacts daily life
 - Difficulty with self care, home management, play, leisure, education, work, social participation, and sleep/rest
 - Learning disabilities

EXAMPLE



VISUAL PROCESSING INTERVENTIONS

Hyper-arousal (calm)

- Offer constant, predictable stimuli
- Provide dim/natural lighting - avoid glare
- Avoid making eye contact/accept gaze avoidance
- Sit side - by - side
- Provide soothing colors
 - Blue/grey/green shades

Hypo-arousal (alert)

- Offer unexpected stimuli
- Provide changing, moving patterns of light/busy patterns
- Provide bright lighting
- Provide alerting colors
 - Red/yellow shades
 - Black/white

TACTILE PROCESSING

- Tactile Processing - Definition
 - Sense of touch, located on the skin, which has the most receptors of all the senses.
- Tactile Processing Deficits
 - Prefers distinct textures (frequent touch)
 - Dislikes certain textures
 - Avoids certain clothing, bed sheets
 - Expresses distress during bathing/grooming/dressing
 - Avoids getting messy
 - Limits self to particular foods, textures, temperatures
- Tactile Dysfunction - How it impacts daily life
 - Distress with self care, play, leisure, education, work, social participation, and sleep/rest
 - Displays anxiety with social skills

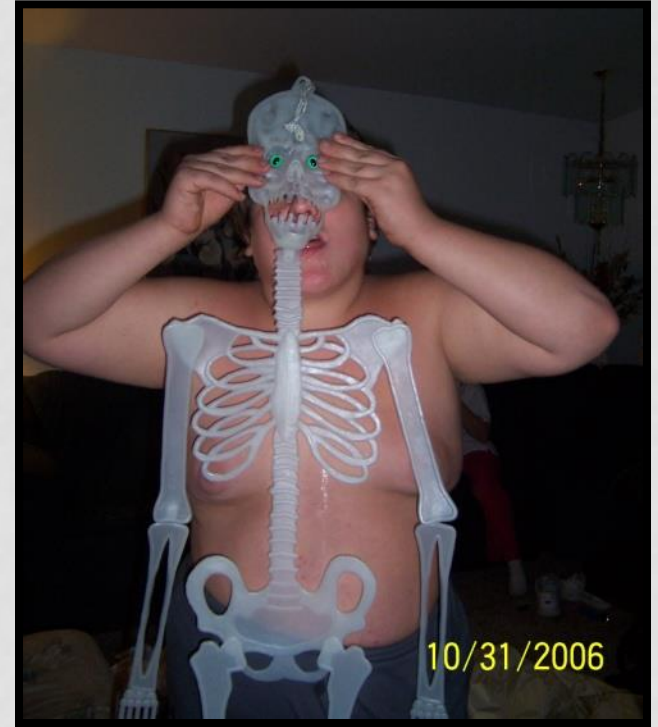
EXAMPLE



EXAMPLE



EXAMPLE



TACTILE PROCESSING INTERVENTIONS

Hyper-arousal (calm)

- Offer activities with:
 - Deep pressure or firm touch
 - Slow stroking/constant touch
 - Diffuse touch
 - Various textures
 - Smooth
 - Soft
 - Warm
 - Dull

Hypo-arousal (alert)

- Offer activities with:
 - Light touch/tickle
 - Unexpected touch
 - Poking/dabbing touch
 - Specific, single area touch
 - Various textures
 - Rough
 - Scratchy
 - Itchy
 - cold

GUSTATORY PROCESSING

- Gustatory Processing - Definition
 - Allows one to experience the sense of taste and smell by using nose/tongue receptors, as well as all of the structures that assist in the eating, talking, and breathing processes
- Gustatory Processing Deficits
 - Decreased muscle strength of lips and cheeks
 - Poor tongue movement patterns
 - Increased or decreased sensitivity of the oral cavity
 - Mouth stuffing while eating
 - Constant need to chew
- Gustatory dysfunction - How it impacts daily life
 - Difficulty with eating, speech, and communication
 - At risk for choking

EXAMPLE



GUSTATORY PROCESSING INTERVENTIONS

Hyper-arousal (calm)

- Offer foods that are familiar/pleasurable
- Offer a variety of foods
 - Suck/chew/blow
- Offer foods that are:
 - Sweet/soft/warm
- Support chewing movement patterns
 - Tend to move food around in mouth

Hypo-arousal (alert)

- Allow the sensory need to chew
- Offer variety of foods
 - Bite/lick/blow
- Offer foods that are:
 - New/different
 - Salty/spicy/hot/sour
 - Crunchy/cold

OLFACTORY PROCESSING

- Olfactory Processing - Definition
 - Allows one to smell (primitive sense - for protection)
- Olfactory Processing Deficits
 - Negative/over reaction to smells
 - Can trigger nausea or sneezing
 - Oblivious to smell/taste
 - Needs to smell everything (to see if it is safe)
- Olfactory Dysfunction - How it impacts daily life
 - Problems with eating
 - Triggers inappropriate behaviors
 - Interferes with social participation

EXAMPLE



OLFACTORY PROCESSING INTERVENTIONS

Hyper-arousal (calm)

- Avoid imposed smells
- Provide familiar, pleasurable scents
- Offer aroma therapy (with caution)

Hypo-arousal (alert)

- Offer aroma therapy (most odors are alerting at initial exposure)

VESTIBULAR PROCESSING

- Vestibular Processing - Definition
 - Allows one to feel a sense of balance in an unconscious system comprised of receptors in the eyes and ears.
 - It allows an individual to hold the head and body upright against gravity
 - It also gives input about what direction we are moving
- Vestibular Processing Deficits
 - Fear of movement/exaggerated fear of movement in a particular situation/transition skills
 - Poor standing or movement balance
 - Inability to keep head and body in alignment
- Vestibular Dysfunction - How it impacts daily life
 - Interferes with social participation
 - Negative emotional behaviors
 - Difficulty with self care, home management, play, leisure, education, work, and rest/sleep

EXAMPLE



EXAMPLE



VESTIBULAR PROCESSING INTERVENTIONS

Hyper-arousal (calm)

- Offer slow, rhythmic movements
- Move in one direction
- Move at a steady pace
- Utilize grounded equipment

Hypo-arousal (alert)

- Offer fast, jerky movements
- Change direction of movements
- Start/stop movements
- Add visual stimulus
- Invert head
- Utilize suspended equipment

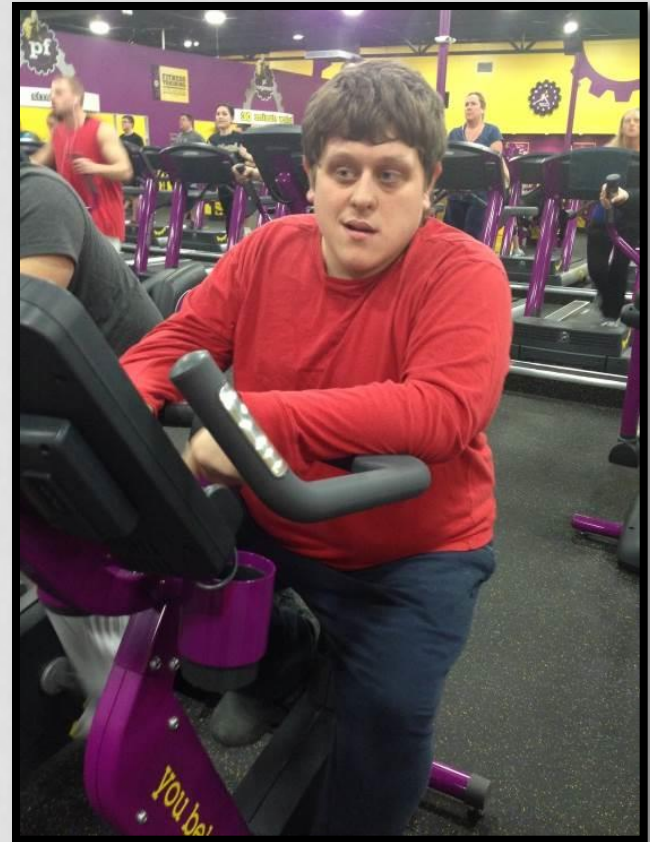
PROPRIOCEPTIVE PROCESSING

- Proprioceptive Processing - Definition
 - Allows an individual to know where the body is in space without use of vision.
 - It is comprised of muscle and joint receptors and helps one to use the right amount of strength required for a task
- Proprioceptive Processing Deficits
 - Inability to know where the body is in relation to objects or other individuals (poor posture/falls/poor protective reflexes)
 - Walking on tip toes
 - Difficulty controlling the force exerted by the muscles to accomplish a task (grinds teeth/squeezes styrofoam cup)
- Proprioceptive dysfunction - How it impacts daily life
 - Difficulty with self care, home management, play, education, leisure, work, and sleep/rest
 - Interferes with social participation (may provoke fights to get sensory input)

EXAMPLE



EXAMPLE



PROPRIOCEPTIVE PROCESSING INTERVENTIONS

Hyper-arousal (calm)

- Offer slow, steady movements
- Utilize slow stretch or joint compression
- Offer resistive, heavy work
- Utilize slow push/pull movements

Hypo-arousal (alert)

- Offer quick, jerky, unexpected movements
- Utilize jerky/jarring movements
- Offer quick joint compression
- Offer fast changing movements

SENSORY DIET CONCEPT

- A strategy to achieve and maintain appropriate state of arousal throughout the day
 - Client-centered
 - Designed to meet the sensory needs of the individual
 - Based on the notion that controlled sensory input can affect one's functional abilities
 - *“Sensory systems are not only our means for perceiving the external world, but are also essential to maintaining arousal, forming our body image and regulating movement.”*
 - Martin 1991 Principles of Neuroscience

SENSORY DIET CONCEPT

- Wilbarger and Wilbarger
 - Comprehensive approach to treating sensory defensiveness
 - Education and awareness
 - Sensory diet
 - Treatment techniques
- How Does Your Engine Run?
 - Step-by-step curriculum
 - Instructs the child simple changes to their daily routine that will help self-regulate or keep their engines running “just right”
 - Sensory diet

STRATEGIES FOR SELF-REGULATION

- Calming, coping, and comfort apply to the overall concept of maintaining self-regulation
- Techniques to foster self-regulation
 - Ready - Not Ready
 - Alert Program
 - Sensory stories - <http://www.sensorystories.com/>
 - Sensory Diet
 - Sensory Choice Board
- Intervention should provide tools for both “in the moment meltdowns” and as proactive strategies to minimize or manage hyperarousal and associated behavior

GOOD BOOKS TO READ!

- The Out of Sync Child
 - Carol Stock Kranowitz
- Sensational Kids
 - Carol Stock Kranowitz
- Answers to Questions Teachers Ask About Sensory Integration
 - Carol Stock Kranowitz
- The Sensory Processing Disorder Answer Book
 - Tara Delaney

GOOD BOOKS TO READ!

- Take Five!
 - Mary Sue Williams , Sherry Shellenberger
- The Sensory Smart Child
 - Lindsey Biel and Nancy Peske
- Sensory Integration Tools for Teens
 - Diana Henry, Tammy Wheeler, Deanna Iris Sava
- Sensory Motor Activities for the Young Child
 - Donna Staisiunas Hurley

REFERENCES

- Baker, J. (2001) *The Social Skills Picture Book*. Future Horizons, Inc.
- Biel, L., Peske N. (2009) *Raising a Sensory Smart Child*. Penguin Books.
- Coucouvanis, J. (2005) *Super Skills*. Autism Asperger Publishing Co.
- Martin, J. (1991) *Principles of Neuroscience*. Appleton & Lange.

REFERENCES

- Scharfenaker, S., Stackhouse, T. (2010) *Ready/Not Ready*, The Developmental & Fragile X Resource Centre.
- Stein, B., Stanford, T., Rowland, B. (2009), *The Neural Basis of Multisensory Integration in the Midbrain: It's Organization and Maturation*.
- Williams, M., Shellenberger, S. (1996) *How Does Your Engine Run?*. TherapyWorks, Inc.

REFERENCES

- *Walbarger, P., & Walbarger, J.L. (1991) Sensory defensiveness in children aged 2 -12: An Intervention guide for parents and other caretakers. Avanti Educational Programs.*
- *Weber, J.D. (2010) Sexuality and Relationships in Teens and Adults with Fragile X Syndrome. National Fragile X Foundation.*
- *Wrobel, M. (2003) Taking Care of Yourself. Future Horizons, Inc.*

