

# Introduction to Sensory Dysregulation

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# What are the senses?

- It's not just the 5 senses we were all taught in elementary school
- If you enjoy rabbit holes, search “how many human senses are there?” and revel in all of the contradictory information
- I think of 9- including pain, temperature, proprioception, and balance

# Sensory Dysregulation

- You can think of it as peripheral or central
- Peripheral sensory issues usually occur due to nerve damage (neuralgia) or trauma
- Deficits can be “positive” or “negative”
- Many of these issues can be similar to what we will be talking about today, such as allodynia, hyperalgesia (both of which are stimulus induced neuropathic pain), hyperacusis, etc.

# Sensory Processing Disorder

- A key feature in ASD
- 96% of children with ASD report hyper or hypo sensitivities, or both
- Not unique to ASD, but occur more often here and is a part of diagnostic criteria
- Not a separate disorder, but some would like it to be
- Touch, smell and taste are considered the most at risk yet are the least studied

# Auditory Sensory Processing

- Some but not all studies show increased conduction time in auditory centers using EEG or evoked potentials
- Atypical processing leads to atypical responses (e.g., covering ears for a vacuum cleaner) and leading to atypical learning
- Hyperacusis and misophonia

# Tactile Sensory Processing

- Minimal attention in research and marked discrepancies in what does exist
- Common complaints include light touch to head or body and clothing feeling uncomfortable

# Visual Sensory Processing

- Many issues in autism seem to point to issues with describing emotions in what they see, rather than visual processing per se
- Children with Autism may respond less to rapid, low frequency processing (?possible reason for increase in ASD Dx?)

# Taste and Smell Hypersensitivities

- Seen as food selectivity, disruptive mealtime behaviors, food neophobia
- Leads to feeding disorders, GI issues, weight loss (Elsayed et al 2022)



# Low Level Multi-Sensory Integration

- Involves collapsing information across multiple senses (e.g., visual and hearing)
- Deficient in children with Autism
- ?Possible role that attention difficulties play here as well as central processing issues in the brain

# Synesthesia

- Activation of one sensory pathway leads to an automatic response in another sense.
- Will often take the pattern of seeing music as swirls of color or letters or numbers may be inherently colored
- Example: purple banana

# Other Sensory Processing Difficulties

- Can there be a disorder of proprioception?
  - E.g., The Yips or the Twisties

Often thought of as an anxiety issue, but little research has been done in this area