Sensory Issues in Autism Spectrum

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Sensory dysfunction or different sensory experiences?

Video #1
Video #2
Video #3
Video #4
Sensory systems

- Vision - the faculty of seeing
- Hearing - the faculty of perceiving sounds
- Vestibular system - refers to structures within the inner ear that detect movement and changes in the position of the head
- Olfaction (the sense of smell) - the faculty of perceiving odors or scents
Sensory system (cont)

- **Gustation (the sense of taste)** - the faculty of perceiving the sensation of a soluble substance caused in the mouth and throat by contact with that substance.

- **Tactile system** - the faculty of perceiving touch, pressure, pain, temperature.

- **Proprioceptive system** - the faculty of perceiving stimuli produced within an organism, especially relating to the position and movement of the body.
Sensory experiences in Autism

- Students with autism have unusual (from a non-autistic point of view) sensory perceptual experiences.
- These experiences may involve hyper- or hyposensitivity, fluctuation between different “volumes” of perception, difficulty interpreting a sense.
- Different experiences broaden the range of knowledge about the world.
“Literal perception”

Students with autism seem to perceive everything as it is. It is a sort of “literal perception”.

![Image of a child with hands in hair]
Children with autism may experience gestalt perception in any sensory modality. They often feel “drowned” in the “sea of background noise” and cannot isolate the words of the next room, outside. In crowded places, their brains seem to try to process all stimuli around them—what every person is saying, and what other noises mean, and sounds coming from all directions mean.
“Gestalt perception” (cont)

What to look for:
- Is not fooled by optical illusions
- Notices every tiny change in the environment
- Does not recognize a familiar environment if approached from a different direction
- Gets easily frustrated when trying to do something in a noisy, crowded room
- Does not seem to understand when trying to do something in noisy, crowded room
- Is unable to distinguish between tactile stimuli of a different intensity
- Is unable to distinguish between strong and weak odors/tastes
- Clumsy; moves stiffly
- Resists change to head position/movement
Most commonly reported sensory experiences in autism

• Hypersensitivity and/or hyposensitivity
• Disturbance by certain stimuli and/or fascination by certain stimuli
• Inconsistency of perception (fluctuation between hyper- and hypersensitivity)
• Fragmented perception
• Distorted perception
• Sensory agnosia (difficulty interpreting a sense)
• Delayed perception
• Sensory overload
Hypersensitivity and/or hyposensitivity

Carl Delacato (1974) classified each sensory channel as being:

- **Hyper-**: the channel is too open, as a result too much stimulation gets in for the brain to handle
- **Hypo-**: the channel is not open enough, as a result too little of stimulation gets in and the brain is deprived
- "White noise": the channel creates its own stimulus because of its faulty operation and, as a result the message from the outside world is overcome by the noise within the system
Hypersensitivity / Hyposensitivity

- Hyper/ Hypo vision
- Hyper/Hypo hearing (hearing “inaudible”)
- Hyper/Hypo taste
- Hyper/Hypo smell
- Hyper/Hypo tactility
- Vestibular hyper/hypo sensitivity
- Proprioceptive hyper/hypo sensitivity

(See attachment)
Inconsistency of perception (fluctuation)

- Two types of inconsistency: 1) fluctuation between hyper- and hypo-; 2) fluctuation between hyper-/hypo- and normal (“in” and “out”).

What to look for:
- Responds differently (pleasure-indifference-distress) to the same visual/auditory/ olfactory/ gustatory/ tactile stimuli, movement activities (swings, slides, spinning, etc)
- May have different muscle tone (low- high)
- Pencil lines, letters, words, etc. are uneven (sometimes too tight, sometimes too faint)
Fragmented perception (perception “in bits”)

When too much information needs to be processed simultaneously, very often students with autism are not able to “break” the whole picture into meaningful units and to interpret objects, people and surroundings as constituents of a whole situation. Instead they process “bits” that happen to get their attention.

What to look for: resists any change; get lost easily; does not recognize people in unfamiliar clothes, in photographs; hears a few words instead of the whole sentence; complains about parts of clothes, smells of some pieces of food, etc.; is confused with the food he/she used to like; resists new motor activities.
Distorted perception means not fragmented but rather in the perception of the form, space, sound, etc. distortions are reported to become worse in the state of nervous overarousal and information overload.

What to look for: fears heights, stairs, escalators; has difficulty catching balls; appears startled when being approached; compulsive hand, head, or body movements that fluctuate between near and far; pronunciation problems; unable to distinguish between some sound; hits eyes/ nose/ oneself; difficulty with hopping, jumping, skipping, riding a tricycle/ bicycle; climbs high into a tree, jumps off tall fences, etc.
Sensory agnosia (difficulty interpreting a sense)

The consequence of being unable to filter sensory information and being flooded with sensory stimuli at the rate the person cannot cope, is being able to sense (see, hear, etc.), but unable to attach the meaning to the sensation.

Sensory agnosia- interpretation of any sense can be lost; students often act as if they were really blind, deaf, numb, “dead”. If is a very frightening experience. Each individual develop his/her own strategies to cope with it.

What to look for: feels/ acts blind or deaf; rituals; has difficulty in interpreting smells/ tastes; seems not to know what their body is doing; becomes disoriented after a change in head position.
Delayed perception (delayed processing)

A student can be delayed on every sensory channel.

What to look for:

- Response to visual/auditory/gustatory/olfactory/tactile stimuli is delayed
- Echolalia in monotonous, high-pitched, parrot-like voice
- Any experiences are perceived as new and unfamiliar, regardless of the number of times the person has experienced the same thing
- Very poor at sports
- Seems oblivious to risks of heights, etc.
- Holds head upright, even when learning or bending over
Sensory overload

Many students with autism are very vulnerable to sensory overload. They may become overloaded in situations that would not bother other people. The causes of information overload can be: the inability to filter out irrelevant or excessive information delayed processing; delayed processing; distorted or fragmented perception, resulting in anxiety, confusion and stress that, in turn, may lead to hypersensitivity.

What to look for: sudden outbursts of self-abuse/tantrums/difficult behaviors; withdrawal; tires very easily; gets nauseated or vomits from excessive movements.
Sensory Overload

Video
Calming and Alerting Sensory Activities

See attachment
References

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