



The Essex Autistic Society
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Clinical Psychology Service

Even The Ants Are Noisy: Sensory Perception in People with Autism Spectrum Conditions.

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What is Autism?

- Autism is a complex developmental disorder.
- It refers to a vast range of abilities and features, hence the term Autism Spectrum Condition.
- Autism is characterised by the Triad of Impairments:
 1. Impairment in Communication.
 2. Impairment in Social Interaction.
 3. Impairment in Imagination.
- Autism is associated with repetitive, ritualistic and obsessional behaviour.

What are the characteristics of Autism?

1. Triad of Impairments:
 - Delayed or no speech.
 - Poor communication using non verbal methods and echolalia.
 - Lack of flexible thinking and resistance to change.
 - Little understanding of social behaviour and often little or no desire for interaction.
2. Learning Disabilities.
3. Often present as Aloof or Passive in their interaction.
4. Repetitive and ritualised behaviours.
5. Little awareness.

Which Theories are Used to Explain Autism spectrum conditions?

- Theory of Mind
- Central Coherence
- Executive Function

What is the Theory of Mind?

“The ability to infer other people’s mental state (their thoughts, beliefs, intentions, etc) and the ability to use this information to interpret what they say, make sense of their behaviour and predict what they will do next”

Impaired Theory of Mind in People with Autism.

Portrayed by:

- Insensitivity to other people’s feelings.
- Inability to take into account what other people know.
- Inability to understand the reasons behind people’s actions.
- Inability to understand that language is used to convey intentions and express thoughts.
- Inability to predict what will happen next.
- Inability to deceive or understand deception.

What is Central Coherence?

“The ability to integrate information in context”

“The ability to see the big picture, as opposed to getting lost in the smaller detail”

People with Autism are said to have Weak Central Coherence.

Example:

“A clinician testing a bright autistic boy presented him with a toy bed, and asked the child to name the parts. The child correctly labelled the bed, mattress and quilt. The clinician then pointed to the pillow and asked “ And what is this?” The boy replied, “It’s a piece of ravioli”.”

Weak Central Coherence= privileged access to the parts of details that are normally left unnoticed due to being embedded in whole figures.

Weak Central Coherence= if attention is directed to smaller details, then context and meaning are likely to be missed or misunderstood.

What is Executive Function?

“The conscious control of thought and action”

Impaired Executive Function in People with Autism.

Leading to:

- Poor planning

- Poor impulse control
- Disinhibition of predominant but incorrect responses
- Disorganised search
- Inflexibility of thought and action
- Behaviour not directed to achieving goals.
- Context inappropriate behaviour

This can result in repetitive and rigid behaviour patterns.

Which Theory is Correct?

- This is a brief overview of the theories. Each one has its strengths and weaknesses.
- The theories are useful for explaining cognitive deficits in people with higher functioning autism, who have some level of verbal ability.
- However, some of the people that we are working with have a lower level of general ability and are predominantly non verbal.
- The aim of this presentation is thus to present ideas around sensory perception in ASC, so that we can begin to explain the behaviours that we see everyday, such as flapping, spinning and rocking, and think about ways to work with them.

Autism and the senses.

People with autism spectrum conditions often present unusual responses to sensory stimuli, such as light, sound, touch etc. If these sensory behaviours are not understood, then they can appear as challenging behaviour.

Why is sensory perception in autism important?

“Turn on the radio, but do not tune it. Leave it on static and fuzz. Turn it up. Ask someone to turn the lights on and off. Strap yourself into a broken chair that is missing a leg and use a table that is off balance-you know the ones in restaurants that makes us all so mad. Now put on some scratchy lace in place of a comfortable T-shirt, put your pants on backwards and wear shoes one size too small. Pour a bowl of grated Parmesan cheese, open a can of sardines and bring the cat box to the table. Now snack on your least favourite food, the one you never eat because it comes with a gag reflex. With all this in place, pick up a new book and learn something new!”

(<http://mywebpages.comcast.net/momtofive/SIDWEBPAGE2.htm#Integration>)

What are the senses?

- Vision.
- Hearing.
- Tactility.
- Smell.
- Taste.

Are there any other important senses?

There are two more senses, which are of particular importance when working with people with autism:

- **THE PROPRIOCEPTIVE SYSTEM:** processes information about body position received through the muscles, ligaments and joints.
- **THE VESTIBULAR SYSTEM:** processes information about movement, gravity and balance, primarily received through the inner ear.

How does it occur?

1. Our brain receives sensory information (sound, taste, touch, movement etc) from our bodies and our surrounding environment.
2. The brain interprets this sensory information.
3. Once the sensory information is interpreted, the brain organises our purposeful responses.

Can it go wrong?

- In some people (and most people with autism) the brain incorrectly/inefficiently processes and organises the sensory information.
- When this occurs, the person may misinterpret or be unable to use the sensory information effectively:

“The person has difficulty responding in an adaptive way to everyday sensations that others hardly notice or simply take in their stride” (Kranowitz, 2003: 4).

What happens when it goes wrong?

- This dysfunction in sensory integration varies from person to person and can differ in the same person from day to day.
- If too much sensory information is being processed (hypersensitivity) then this can lead to sensory overload and avoidance.
- If there is too little sensory information being processed (hyposensitivity) then this can lead to sensory seeking behaviours.

Why is this important?

- Fluctuation between hyper and hypo sensitivity can lead to fluctuation between over-reactions and under-reactions to sensory information.
- These behaviours, if misinterpreted and misunderstood, can present as challenging behaviour.
- It is **EXTREMELY** important therefore that sensory seeking/avoiding behaviours are understood, so that alternative strategies/behaviours can be implemented to improve the quality of life for the person.

How do we assess the senses?

At The Essex Autistic Society, we are forming sensory profiles using OLGA BOGDASHINA'S MODEL (2003), from her book Sensory Perceptual Issues in Autism and Asperger's Syndrome.

The Sensory Profile Checklist Revisited (SPCR) is a screening tool devised and by Olga Bogdashina for compiling a sensory profile of an individual with an autistic spectrum disorder. It consists of 20 categories based on the 7 sensory systems to cover possible patterns of sensory experiences with regard to hypersensitivity and hyposensitivity.

What is Hypersensitivity?

- **HYPERSENSITIVITY:** extreme/acute sensitivity i.e. too much sensory stimulation.

The types of hypersensitivity:

- **HYPERVISION.**
- **HYPERHEARING.**
- **HYPERTASTE.**
- **HYPERSMELL.**
- **HYPERTACTILITY.**
- **PROPRIORECEPTIVE HYPERSENSITIVITY.**
- **VESTIBULAR HYPERSENSITIVITY.**

What is Hyposensitivity?

- **HYPOSENSITIVITY:** too little sensory stimulation and will seek out more sensory experiences to fulfil that need.

The types of hyposensitivity:

- **HYPOVISION.**
- **HYPOHEARING.**
- **HYPOTASTE.**
- **HYPOSMELL.**
- **HYPOTACTILITY.**
- **PROPRIORECEPTIVE HYPOSENSITIVITY.**
- **VESTIBULAR HYPOSENSITIVITY.**

What are the behaviours to look out for in hyper/hypo vision?

HYPERVISION:

- Looks at minute particles, picks up dust.
- Dislikes dark/bright lights.
- Frightened by lightening.
- Looks down most of the time.

- Covers eyes/squints at bright light.
- Avoids eye contact.
- Easily distracted by visual stimuli in same room.

HYPOVISION:

- Attracted to light/reflections.
- Looks intently at things.
- Moves fingers/objects in front of eyes.
- Difficulty controlling eye movements and tracking objects.
- Difficulty discriminating between colours, shapes, sizes, letters.

Strategies/Activities for vision.

- Individual workstations with dividers on either side to block out visual stimulus either facing towards or away from the room.
- Visual strategies for communication (symbols, timetables etc.).
- Do NOT direct the person to make eye contact with you, as this can cause sensory overload.
- Experiment with sensory equipment, such as lava lamps, fibre optics, egg timers, bubble tubes.
- Looking for letters to colour in a sheet of newsprint e.g. colour all the “o’s” in blue and all the “p’s” in green.
- Wordsearches.
- Dark sunglasses or hats with big brims to block out lights.
- Brightly coloured pens/paper/glitter etc

What are the behaviours to look out for in hyper/hypo hearing?

HYPERHEARING:

- Covers ears.
- Very light sleeper
- Frightened by animals.
- Dislikes thunderstorms, crowds etc.
- Dislikes haircuts.
- Avoids noisy places/equipment.
- Makes repetitive sounds to block out others.
- Distracted by sounds that go unnoticed by others e.g. heaters, clocks, people blinking.

HYPHEARING:

- Bangs objects.
- Likes vibration.
- Likes kitchen, bathroom.
- Likes traffic, crowds etc.
- Tears/crumples paper.
- Seeks noise e.g. washing machine.
- Makes loud rhythmic noises.
- May not respond to verbal cues.
- Appears confused about where a sound is coming from.

Strategies/Activities for hearing.

- Visual communication, such as symbols, timetables or visual choice boards, to limit auditory stimulation. When distressed do not use any verbal communication.
- Earplugs and/or headphones can be used to block out auditory stimulation either with or without music being played.
- Keep numbers in the room to a minimum.
- Matching sounds: fill 2 empty, identical containers, such as margarine tubs, with rice/lentils/beans etc and ask the child to find the pair that sound the same
- Rhyming games.
- Music therapy or use music to set the mood, e.g. soft, rhythmic sounds for calming and variable music for alerting.

What are the behaviours to look out for in hyper/hypo tactility?

HYPERTACTILITY:

- Resists being touched.
- Cannot tolerate new clothes, hates shoes.
- Overreacts to heat/pain/cold/rain.
- Avoids getting messy.
- Dislikes food of certain texture.
- Avoids people/crowds.
- Experience difficulty with personal care.
- Walk on tiptoes.

HYPOTACTILITY:

- Likes pressure, tight clothes.
- Seeks pressure by going under heavy things.
- Does not feel heat/pain/cold.
- Enjoys rough and tumble play.
- Prone to self injury.
- Hugs tightly.
- Frequently bumps into others.
- Difficulty distinguishing between light and rough touch.
- Does not realise when hands/face are dirty.

Strategies/Activities for tactility.

- Weighted jackets/waistcoats/vests and/or blankets. Backpacks can also be used to provide tactile stimulus.
- Bean bag chairs.
- Hammocks.
- Use warm towels to dry self after washing.
- Slow, continuous touch soothes, whereas fast, intermittent, vibratory touch excites e.g. firm restraint will be calming to some.
- Creative thought regarding activities, such as using corn flour and water, activities involving different textures such as textured play doh, pasta etc (go to www.sensory-processing-disorder.com for more information).

What are the behaviours to look out for in hyper/hypo smell?

HYPERSMELL:

- Toileting problems.
- Runs from smells.
- Wears the same clothes.
- Moves away from people.
- Avoids kitchens and bathrooms.
- Choose food based on smell.
- Avoid smells that might be considered pleasant to others.

HYPOSMELL:

- Smells self/people/objects.
- Smears/plays with faeces.
- Seeks strong odours (glue etc.).
- Wets the bed.
- Might not notice unpleasant odours/unable to identify smells.
- Uses smell to interact with objects.

Strategies/Activities for smell.

- Experiment with incense sticks/aromatherapy oils to find out likes and dislikes.
- Learn to associate smells with a certain activity, e.g. coffee helps initiate a person to get out of bed.
- Citrus balls and other fresh fruit and vegetables to help learn names and correct pronunciation of the items.
- Scented markers/pens/glue.
- Lavender scented pillows.
- Aromatherapy oils in bath, such as lavender for calming, tea tree as an antiseptic etc.
- Activities involving herbs etc.

What are the behaviours to look out for in hyper/hypo taste?

HYPERTASTE:

- Poor/picky eater.
- Uses tip of tongue to taste.
- Gags/vomits easily.
- Craves certain food.
- Prefers bland foods.
- Dislikes carbonated drinks.

HYPOTASTE:

- Eats anything (pica).
- Mouths and licks objects.
- Eats mixed food (sweet/bitter).
- Regurgitates.

Strategies/Activities for taste.

- Crunching and chewing food helps to alert, whereas sucking and chewing can help to calm.
- Themes, such as round foods with round activities, like balls, circles, “O’s”, or other themes, like squares, noisy activities and noisy foods etc.
- Alphabet spaghetti shapes/pasta.
- Chewy necklace.
- Blowing bubbles with bubble gum (if allowed).
- Drinking custard and other thick drinks through a straw.
- Sports bottles.
- Vitamin supplements if the person is consuming a restricted diet.
- Add spices to food to increase stimulation.
- Dilute food and drinks and to decrease stimulation.

What are the behaviours to look out for in proprio-hyper/hyposensitivity?

PROPRIOCEPTIVE HYPERSENSITIVITY:

- Places body in strange positions.
- Difficulty with buttons etc.
- Turns whole body to look at things.
- Moves in stiff, uncoordinated manner.

PROPRIOCEPTIVE HYPOSENSITIVITY:

- Low muscle tone.
- Weak grasp, clumsy.
- Rocks back and forth.
- Does not feel hunger.
- Appears floppy/falls frequently.
- Seeks out jumping, bumping, crashing activities.

Strategies/Activities for proprioception.

- Trampolines and swings.
- Bean bag chairs.
- Running, skipping, aerobic activities.
- Tighter clothing to increase stimulation.
- Weighted products, such as weighted blanket, backpack.
- Household chores, such as hoovering and gardening.
- Obstacle courses.

What are the behaviours to look out for in vestibular hyper/hypo sensitivity?

VESTIBULAR HYPERSENSITIVITY:

- Avoids/dislikes playground equipment e.g. swings, slides, merry-go-rounds.
- Difficulty walking on uneven surfaces.
- Becomes stressed if feet are off the ground.
- Afraid of heights/ escalators/stairs.
- Avoids balancing activities.
- Keeps head upright even when bending down.

VESTIBULAR HYPOSENSITIVITY:

- Enjoys swings/slides etc.
- Craves fast, spinning, intense movement experiences.
- Rocks body, shakes legs or head whilst sitting.
- Likes sudden, quick movements.
- Appears to be in constant motion.

Strategies/Activities for vestibular.

- Hammocks, rocking chairs, bench swings.
- Swimming.
- Exercise equipment, such as treadmills, exercise bikes, therapy balls, balance boards etc.
- Obstacle courses using “over”, “under”, “up”, “down” etc.
- Looby Loo/Hokey Cokey/Simon Says type games where child is instructed to move certain body parts.

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