



## ENVIRONMENT

Creating environments that are flexible and adapt to sensory needs

### INTRODUCTION

Most individuals on the autism spectrum experience sensory stimuli differently than non-autistics. A common difference is sensory over-responsivity (that is, acute, heightened or excessive sensitivity) or under-responsivity (that is, slow, minimal, or no response) to sensory input. The difference is not to do with the functioning of the sense organ, but the way the brain processes incoming sensory information.

In helping autistic employees, students, and residents with sensory processing differences, awareness and empathy is the first step.

People are unique in their sensory aversions and preferences. It is best to consult with the individual about how to make the space (home, school or work) more accessible through brainstorming and proactive planning. When sensory differences are addressed, positive changes occur.

Imagine your distress if your senses were suddenly magnified by hundreds of times. Some individuals on the autism spectrum may have difficulty discerning differences between sensory messages. While others can “tune-out” or habituate to a new sensory stimulus, an autistic person may never get used to it.

The individual may have difficulty integrating more than one sensory stimulus simultaneously; for example, it may be very difficult, possibly even painful, to be looking and listening at the same time to the person speaking. Sensory stimuli can be experienced as confusing, physical discomfort, pain, or feeling overwhelmed.

### RECOMMENDED STRATEGIES

#### General

- Create a safe approachable relationship that invites the person to discuss their sensory needs.
- As much as possible, allow the individual to have control over the sensory environment.
- Provide opportunities to take short breaks to avoid sensory overload.
- Provide a quiet, uncluttered, relaxing room that the person can modify to suit their needs. Alternatively, suggest a quiet environment that they can go to (For example, the library on campus).
- Understand that sensory stimuli are more difficult to process if the person is anxious or upset. Conversely, uncomfortable or distressing sensory stimuli can cause strong emotional reactions.
- Autistic students/employees may require accommodations to projects to group/teamwork.
- Consider providing online options for social interactions and meetings because the individual may experience challenges speaking in sensory stimulating environments or integrating information during group conversations.

### General (Continued)

- Provide a consistent and predictable work schedule to reduce stress and help establish a routine.
  - Be aware that the individual may have difficulty multi-tasking; thus, allow more time to accomplish tasks when needed.
  - Communicate in a direct way: that is, avoid excessive gestures, wait until the person is done a task before speaking to them, and speak slowly, calmly, and concisely with an even tone.
  - Be accepting of repetitive movements (such as, rocking, pacing, hand flapping) because they may serve to reduce stress.
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### Touch & Temperature

#### *Over-responsivity:*

Clothing materials and personal hygiene activities can be irritating to the touch sensitive person. Some unexpected touches can feel painful and may stimulate an automatic, reflexive avoidant response (e.g., the autistic individual may try to move away from the person or material that caused the response).

Environments with poor ventilation and temperature control can be distressing.

- Offer an area of the classroom/office/work space where they are unlikely to experience unexpected touch (e.g., getting bumped into by others).
  - Get permission before providing physical guidance or shaking their hand.
  - Be compassionate about personal hygiene issues; for instance, showers, hair care, may be difficult.
  - Weighted material (e.g., heavy blanket) on thighs or shoulders can be calming and assist their ability to concentrate.
  - Understand the need to fidget with a hand-held object; e.g., a pencil topper, stress ball, small knit juggling ball
  - Be understanding of the student's or employee's need to wear soft and loose-fitting clothes.
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### Sound

#### *Over-responsivity:*

Sudden loud noises can cause discomfort and even pain. The person may be unable to tune out background noise and this will reduce their ability to concentrate.

For example: A noisy housing unit can interfere with a person's ability to sleep and negatively affect their health and well-being. Fluorescent lights, computers, and electricity may have a distracting hum that is noticeable to the autistic person. The person may hum to drown out ambient noise.

- Change the person's work, living, or learning space so that it is quieter.
- Allow listening to calming sounds (e.g., music, nature sounds, white noise) through headphones and the use of volume reducing earplugs and hearing protection.
- Offer "closed captioning" on video conferences and TTY (text to telephone).
- In noisy environments, allow for a "sensory break" or time in a quiet setting.
- Provide extra time, and quiet, for exams or work.

### Sight

#### *Over-Responsivity:*

Many autistic individuals will find eye contact difficult. Bright lights, vivid colours, and patterns can be confusing and overwhelming to their sensory system. Fluorescent lights can be painful on the eyes to the point of causing headaches and migraines.

- Cut down on visual clutter (e.g., reduce notices, pictures, excessive writing on blackboards).
- Decorate simply, devoid of complex patterns, and utilize closed storage spaces where possible.
- Decorate with neutral and subdued colours (calming shades of green or blue); avoid stimulating colours (red, orange, yellow). Use colour differences to designate wall, floor, and furniture spaces; all of which make navigation easier.
- Avoid fluorescent lights and seating near bright lights. To the extent possible, provide dimmer switches, subdued or indirect lighting, natural lighting, lights that reflect upward not downwards, and incandescent light bulbs.

- Understand the need to wear visors, sunglasses and/or tinted glasses indoors to address artificial lighting sensitivities.
- Offer a slanted writing or reading surface (like an angled lap top pad).

#### *Under-Responsivity / Visual Learners:*

Many autistic people are “visual learners” and visual supports will help them be successful. The under-responder may miss key information in emails, presentations, the blackboard, etc.

Examples of supportive strategies include:

- provide instruction sheets, diagrams, outlines, organizers, colour coded filing systems, icons, labels, checklists, and/or activity schedules.
- Use coloured markers, highlighters, and/or text bolding to draw attention to important information.

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### Taste, Food Texture, & Smell

#### *Over-responsivity:*

Specific food tastes, textures and/or appearances can be noxious and even nauseating. Strong smells (such as, perfumes, disinfectant gel, food, smoking) can be distressing.

- Be respectful of food preferences and aversions. For example, they may have a limited food repertoire, prefer to eat different foods on the plate separately, avoid social situations and environments that involve food, and prefer to eat alone or in quiet environments.
- Allow calming and regulating oral activities such as gum chewing, sucking on a hard candy, drinking water, etc.
- To decrease food odours, request that staff limit food consumption to the lunchroom when the work environments are open.

- Create a scent free environment; discourage perfumes, scented personal hygiene products (e.g., deodorants, after-shave), air fresheners, dry erase markers and industrial cleaning products.
- Allow the individual to utilize scents of their choosing to mask distressing smells. For example, an essential oil in a diffuser or an air freshener.

#### *Under-responsivity:*

Autistic individuals may not register strong smells including their own body odour or excessive use of cologne. A compassionate and empathetic peer or mentor can bring this to the individual's attention and offer to brainstorm solutions with the individual.

## RESOURCES

**Assirelli, M.L. (n.d.).** *Designing environments for children and adults with autism.*

**Bissonnette, B. (2020).** *Employer's guide to Asperger's Syndrome / Autism.*

**Grandin, T. (2011).** *The way I see it: A personal look at autism and Asperger's* (Rev. ed.). Arlington, TX: Future Horizons.

**Kranowitz, C. (2016).** *The Out-of-sync child grows Up: Coping with sensory processing disorder in the adolescent and young adult years.* New York NY: Penguin.

**Sarrett, J. C. (2018).** *Autism and accommodations in higher education: Insights from the autism community.* Journal of Autism and Developmental Disorders, 48(3), 679-693.

**Spiral Foundation (2021).** *SPD Education Toolkit for Adults and Adolescents.*

**Star Institute (2022).** *SPD in adults.*

## REFERENCES

**Assirelli, M.L. (n.d.).** *Designing environments for children and adults with ASD.* Retrieved from Colour and best practice in autism design by ga architects - Issuu

**Bhohti, A., & Brown, T. (2013).** *Examining the Wilbargers' deep pressure and proprioceptive technique for treating children with sensory defensiveness using a multiple-single-case study approach.* Journal of Occupational Therapy, Schools, & Early Intervention, 6(2), 108-130.

**Bissonnette, B. (2020).** *Employer's guide to Asperger's Syndrome / Autism.* Retrieved from <https://www.forwardmotion.info/wp-content/uploads/2020/05/Employers-Guide-to-Aspergers-Syndrome-4th-edition.pdf>

**Crane, L., Goddard, L., & Pring, L. (2009).** *Sensory processing in adults with autism spectrum disorders.* Autism, 13(3), 215-228.

**Davidson, J. (2010).** *'It cuts both ways': A relational approach to access and accommodation for autism.* Social Science & Medicine, 70(2), 305-312.

**Grandin, T. (2011).** *The way I see it: A personal look at autism and Asperger's* (Rev. ed.). Arlington, TX: Future Horizons.

**Green, S. A., Hernandez, L., Lawrence, K. E., Liu, J., Tsang, T., Yeargin, J., ... & Bookheimer, S. Y. (2019).** *Distinct patterns of neural habituation and generalization in children and adolescents with autism with low and high sensory overresponsivity.* American Journal of Psychiatry, 176(12), 1010-1020.

**Khalifa, G., Sharif, Z., Sultan, M., & Di Rezze, B. (2020).** *Workplace accommodations for adults with autism spectrum disorder: A scoping review.* Disability and Rehabilitation, 42(9), 1316-1331.

**Kranowitz, C. (2016).** *The Out-of-sync child grows Up: Coping with sensory processing disorder in the adolescent and young adult Years.* New York NY: Penguin.

**Miller, L. J., Anzalone, M. E., Lane, S. J., Cermak, S. A., & Osten, E. T. (2007).** *Concept evolution in sensory integration: A proposed nosology for diagnosis.* The American Journal of Occupational Therapy, 61(2), 135.

**Nicholas, D. B., Mitchell, W., Dudley, C., Clarke, M., & Zulla, R. (2018).** *An ecosystem approach to employment and autism spectrum disorder.* Journal of Autism and Developmental Disorders, 48(1), 264-275.

**Robertson, A. E., & Simmons, D. R. (2015).** *The sensory experiences of adults with autism spectrum disorder: A qualitative analysis.* Perception, 44(5), 569-586.

**Sarrett, J. C. (2018).** *Autism and accommodations in higher education: Insights from the autism community.* Journal of Autism and Developmental Disorders, 48(3), 679-693.

**Shore, S. M. (2003).** *Beyond the wall: Personal experiences with autism and Asperger syndrome (2nd Ed.).* Shawnee Mission, KS: AAPC Publishing.

**Waisman, T.C. & Nachman, B.R. (2021).** *Communications guide.* Unpublished document prepared for Sinneave Family Foundation, Calgary, AB.

**Waisman-Nitzan, M., Gal, E., & Schreuer, N. (2021).** *"It's like a ramp for a person in a wheelchair": Workplace accessibility for employees with autism.* Research in Developmental Disabilities, 114, 103959.

**Williams, D. (2005).** *Autism: An inside-out approach: An innovative look at the mechanics of autism and its developmental cousins.* London and Philadelphia: Jessica Kingsley Publishers.

