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Spring 4-17-2020

# Home Assessment Modifications for Individuals with Autism Spectrum Disorder and Sensory Processing Disorder

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### Recommended Citation

Stelbasky, Danielle, "Home Assessment Modifications for Individuals with Autism Spectrum Disorder and Sensory Processing Disorder" (2020). *OTD Capstone Projects*. 33.

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# Home Assessment Modifications for Individuals with Autism Spectrum Disorder and Sensory Processing Disorders



By: Danielle Stelbasky, OTD/S



## Mission and Vision

**Mission:** To create safer, more accessible homes and environments for children and young adults with disabilities.

**Vision:** Inclusion for everyBODY.



## Identified Needs of Tucker's House

### Why is there a need for specific home modifications for individuals with ASD and ASD-like behaviors?

#### • Growing population

- 1 in 54 children has been identified with Autism Spectrum Disorder (ASD) according to CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network (Maenner et al., 2016).

#### • Wandering and drowning

- Drowning remains the leading cause of death for children with ASD and accounts for ~90% of deaths associated with wandering or bolting, for those aged 14 and younger (Autism Speaks, 2017, p.28).

#### • Caregiver burden

- 80% of caregivers of children with ASD report being "stretched beyond their limits" (Sharpley et al., 1997).
- There is a clear relationship between elopement, aggression, self-injury, and temper tantrums on caregiver stress.

#### • Environmental barriers due to sensory processing difficulties

- Typical homes are not suited for an individual w/ ASD or SPD, individuals may have difficulty regulating the following: visual, auditory, olfactory, tactile, vestibular, and proprioceptive systems

#### • Aggression, self-injury, and furniture damage

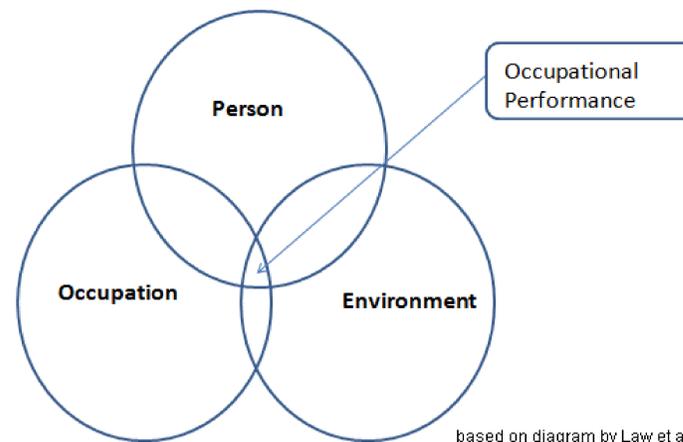
- 28% of 8-year-olds with ASD have self-injurious behavior (The Scott Center, 2019).

#### • ASD is considered long-term and "nondegenerative"

- Because these individuals grow to be adults, adapting and alleviating barriers in their home environment is important to focus on because they are growing and changing individuals

## Goals of the Experiential Component

- Identify needs for design specific to clients with ASD and/or sensory processing disorders
- Create a caregiver survey specific to ASD
- Observe and participate in home assessments and modifications
- Investigate sensory regulating products and systems
- Relate viable solutions for individuals with sensory impairments to live efficiently and safely at home
- Enhance communication skills with clients through self-reflections
- Determine how to integrate sensory enriching and calming experiences into home environment
- Conduct phenological research for individuals with ASD and ASD-like behaviors
- By incorporating the PEO model, identify barriers in clients' homes and implement modifications to promote independence and occupational performance, to meet current AND future needs



## Acknowledgements

Faculty Mentor: Dr. Teresa Plummer, PhD, OTR/L, CAPS, CEAS, ATP  
 Expert Mentor: Sandra Zaccari, PT  
 Belmont University, School of Occupational Therapy

References Available Upon Request

## Outcomes of the Project

- To reduce chance of wandering:

Modifications for Individuals w/ ASD and ASD-behaviors

Challenges	Recommendations	Rationale	Modifications (Picture, Price, Description) for Individuals with ASD
<b>Elopement/wandering</b>	<ul style="list-style-type: none"> <li>• Alarms</li> <li>• Voice activated door alarm</li> <li>• Sensors on doors and windows</li> <li>• Durable Fencing</li> <li>• Locks &amp; dead bolts, pool covers</li> <li>• Visual signs &amp; distraction</li> <li>• Electric strikes for door</li> <li>• Child's room adjacent to parents with opening in between</li> <li>• Keep pool toys/ interesting items out of pool</li> <li>• Attractive distractions</li> </ul>	<ul style="list-style-type: none"> <li>• #1 concern for parents is child safety w/ wandering from home</li> <li>• 49% of children w/ ASD attempt to elope from their environment</li> <li>• Drowning remains leading cause of death for children w/ ASD</li> <li>• Variable options for door locks allow freedom &amp; control over environment, along with necessary safety for caregiver's peace of mind</li> <li>• Door strike interted w/ other safety systems will auto-unlock door in case of emergency or power outage</li> <li>• Adjacent room, create opening between child &amp; caregiver's room for night-time monitoring</li> <li>• make sure lock system meets current building code &amp; fire code requirements* (see row "overall safety features of every house")</li> </ul>	<p><b>Battery Powered Alarm</b></p> <ul style="list-style-type: none"> <li>• Battery powered alarm to increase safety from wandering/elopement behaviors. Can be placed on any opening door &amp; window.</li> <li>• Price: between \$15-\$42</li> <li>• <a href="#">Amazon: Alarm</a></li> </ul> <p><b>Smart Door Sensor</b></p> <ul style="list-style-type: none"> <li>• Self-controlled door &amp; window sensor</li> <li>• It is magnet based, on the connection to windows, doors, sheds, cabinets, gates and more</li> <li>• Notification sent to your phone within 5 mins</li> <li>• Compatible with "Alexa" and Google Home.</li> <li>• Price: \$24.99</li> <li>• <a href="#">Amazon: Smart Door Sensor</a></li> </ul> <p><b>Electronic Lock Door Lock</b></p> <ul style="list-style-type: none"> <li>• Auto-locking function to improve security w/ remote control.</li> <li>• No matter door preparation &amp; easy to install.</li> <li>• Customizable programming code for status</li> <li>• Price: \$24.99</li> <li>• <a href="#">Amazon: Smart Lock</a></li> </ul> <p><b>Intercom Lock Cabinet</b></p> <ul style="list-style-type: none"> <li>• Can store and register up to 20 fingerprints</li> <li>• Can be used for water cabinet, drawers, storage bins, and more</li> <li>• Safety protection of personal items and important data at home</li> <li>• Price: between \$25-\$30</li> <li>• <a href="#">Amazon: Fingerprint Lock Cabinet</a></li> </ul>
<b>Fear of elopement</b>	<ul style="list-style-type: none"> <li>• Shoe tags</li> <li>• ID bracelet</li> <li>• GPS locator</li> <li>• If child uses a cellphone, use "Find my iPhone app" and "Find my Friends" app to see their location at all times</li> </ul>	<ul style="list-style-type: none"> <li>• Items used if individual has wandered from environment</li> <li>• Individuals with ASD/ASD-like behaviors may be unable to communicate needs to strangers &amp; law enforcement</li> <li>• Tracking technology to locate child for safety</li> </ul>	<p><b>Intercom Lock Cabinet</b></p> <ul style="list-style-type: none"> <li>• Can store and register up to 20 fingerprints</li> <li>• Can be used for water cabinet, drawers, storage bins, and more</li> <li>• Safety protection of personal items and important data at home</li> <li>• Price: between \$25-\$30</li> <li>• <a href="#">Amazon: Fingerprint Lock Cabinet</a></li> </ul>

- To reduce caregiver burden (reduce environmental barriers in own home to feel safe, more independent, and happy in own homes):

Modifications for Individuals w/ ASD and ASD-behaviors

Challenges	Recommendations	Rationale	Modifications (Picture, Price, Description) for Individuals with ASD
<b>Water play</b>	<ul style="list-style-type: none"> <li>• Faucets that direct water play</li> <li>• Wet room w/ floor drain</li> <li>• Sealed surfaces</li> <li>• Solidly attached shower door</li> <li>• Wall mounted toilet w/ tank built in wall</li> <li>• Non-slip flooring- high friction index for all floor surfaces</li> <li>• Grab bars w/ solid backing</li> <li>• Toilet lock</li> </ul>	<ul style="list-style-type: none"> <li>• Individuals w/ ASD/ ASD behaviors &amp; or sensory processing difficulties, tend to enjoy water play, adapt environment to support individual's unique preferences</li> <li>• Reduces floods &amp; overall mess in bathroom</li> <li>• Solid attachment for protection</li> <li>• Slip &amp; fall prevention</li> <li>• Less supervision required &amp; less clean-up for caregiver</li> </ul>	<p><b>Wet Room w/ Floor Drain</b></p> <ul style="list-style-type: none"> <li>• Idea for showers &amp; secondary drainage outside shower area to protect against water</li> <li>• Can place drain anywhere</li> <li>• Minimal channel to prevent stagnant water</li> <li>• Price: between \$75-\$100</li> <li>• <a href="#">Amazon: Wet Room Floor Drain</a></li> </ul> <p><b>Tempered Bathroom Valves</b></p> <ul style="list-style-type: none"> <li>• If hot water is above the set point, valve opens to allow mixture of cold water</li> <li>• Prevents damage to PVC piping due to over-temperature conditions</li> <li>• Installed in the drain line</li> <li>• Temperature water</li> <li>• Price: between \$90-\$130</li> <li>• <a href="#">Amazon: Tempered Bathroom Valve</a></li> </ul> <p><b>Non-slip Floor Mat</b></p> <ul style="list-style-type: none"> <li>• Suction cup traction mat pad for walls, floors, tub, with drain hole</li> <li>• Covers a large area of shower floor for traction and stability</li> <li>• Prevents slipping for individuals with balance concerns</li> <li>• Price: between \$20-\$30</li> <li>• <a href="#">Amazon: Non-slip Shower Mat</a></li> </ul> <p><b>Toilet Lock</b></p> <ul style="list-style-type: none"> <li>• Toilet lock to prevent unintentional use of toilet water (prevents objects in toilet, shower with water, etc.)</li> <li>• One-handed one push and release to open then push button to close</li> <li>• Complete assembly when needed</li> <li>• Price: between \$8-\$10</li> <li>• <a href="#">Amazon: Toilet Lock</a></li> </ul>
<b>Access to general hazards</b>	<ul style="list-style-type: none"> <li>• Tempered balancing valves for hot water</li> <li>• Locked cabinets for toxins/chemicals and firearms/knives</li> <li>• Arc-fault &amp; ground-fault receptacles for outlets</li> <li>• Outlet safety caps</li> <li>• Unplug &amp; store appliances</li> <li>• Safes</li> </ul>	<ul style="list-style-type: none"> <li>• Sensory &amp; perception difficulties can lead to reduced sensitivities to touch, heat, sound, etc. leading to increased risks of scalding &amp; electrocution</li> <li>• Limited higher-level cognitive skills (judgment &amp; insight) with safety</li> </ul>	<p><b>Tempered Bathroom Valves</b></p> <ul style="list-style-type: none"> <li>• If hot water is above the set point, valve opens to allow mixture of cold water</li> <li>• Prevents damage to PVC piping due to over-temperature conditions</li> <li>• Installed in the drain line</li> <li>• Temperature water</li> <li>• Price: between \$90-\$130</li> <li>• <a href="#">Amazon: Tempered Bathroom Valve</a></li> </ul>
<b>Aggression</b>	<ul style="list-style-type: none"> <li>• General expansion of floor space</li> <li>• Expand bathroom for safety outlet</li> <li>• Quiet space/ Safe room</li> <li>• Adequate circulation space</li> <li>• 2 safe exits from shared space</li> <li>• Circular walking paths</li> <li>• Keep emergency contacts on hand (other caregivers, family members etc.), alert via group message if escalation occurs</li> <li>• Training</li> </ul>	<ul style="list-style-type: none"> <li>• Cramped spaces become a barrier in environment</li> <li>• Environment can be modified to reduce triggers, support safety, &amp; de-escalate situations, private place for safety</li> <li>• Safety exits for caregiver</li> <li>• Open floor space for caregiver to have correct &amp; safe posture for assistance</li> <li>• Walking path designed for pacing, stress relief, sensory regulation, avoiding social situations, &amp; control over environment</li> <li>• Keep emergency contacts on hand as "in case of emergency"</li> <li>• Group text to alert family members and other caregivers</li> </ul>	<p><b>Non-slip Floor Mat</b></p> <ul style="list-style-type: none"> <li>• Suction cup traction mat pad for walls, floors, tub, with drain hole</li> <li>• Covers a large area of shower floor for traction and stability</li> <li>• Prevents slipping for individuals with balance concerns</li> <li>• Price: between \$20-\$30</li> <li>• <a href="#">Amazon: Non-slip Shower Mat</a></li> </ul>

- To reduce environmental barriers due to sensory processing difficulties:

Sensory Regulation Modifications for Individuals w/ ASD and ASD-behaviors

Challenges	Recommendations	Rationale	Sensory Modifications for Individuals with ASD
<b>Sensory Sensitive</b>	<ul style="list-style-type: none"> <li>• Soundproof child's bedroom</li> <li>• Voice activated or flashing alarm system, rather than high-pitched alarms</li> <li>• Vinyl flooring backed with foam and has a cushioned, flexible surface for sound reduction</li> <li>• Thick rugs throughout home to dampen sound</li> <li>• Quiet room in home</li> <li>• Aquarium</li> <li>• Light dimmers for control over brightness</li> <li>• Zoned HVAC systems</li> <li>• Move floor registers to walls</li> <li>• Backyard playground linear swing</li> <li>• Weighted blanket</li> <li>• Noise canceling headphones</li> <li>• Give choices for eating &amp; "First-then" schedules</li> <li>• Meditation tapes with choice of music and voices, use daily to establish a routine</li> <li>• *Sensory Room*</li> </ul>	<ul style="list-style-type: none"> <li>• Individuals who are highly aware of surroundings become easily distractible</li> <li>• Discomfort with sensation, provide individual with as much control over environment as possible</li> <li>• May be hyperactive</li> <li>• Difficult maintaining attention</li> <li>• See-through aquarium for effective connections between rooms. The layer of water and aquatic life provides cover that allows individuals to interact in a more discreet way.</li> <li>• Provide individual with schedules to promote independence with daily routine</li> </ul>	<p><b>Light Dimmers</b></p> <ul style="list-style-type: none"> <li>• Light dimmers that are connected to a light fixture, gives individual control of brightness in environment</li> <li>• Smart dimmer with color light</li> <li>• Price: between \$15-\$42</li> <li>• <a href="#">Amazon: Light Dimmer</a></li> </ul> <p><b>Noise Cancelling Headphones</b></p> <ul style="list-style-type: none"> <li>• Helps individuals with autism and SPD manage auditory challenges</li> <li>• Durable, flat head, low profile design</li> <li>• Helps filter noise</li> <li>• Price: between \$10-\$20</li> <li>• <a href="#">Amazon: Noise Cancelling Headphones</a></li> </ul> <p><b>Calming mesh tent</b></p> <ul style="list-style-type: none"> <li>• A calming support for children of all ages and abilities</li> <li>• Fun developmental aid that provides a fun place to sit and rest, for kids with low muscle tone, autism, SPD, and hyperactivity.</li> <li>• Made of high-quality design, hold up to 200lb</li> <li>• Price: between \$25-\$30</li> <li>• <a href="#">Amazon: Calming Tent</a></li> </ul> <p><b>Weighted blanket</b></p> <ul style="list-style-type: none"> <li>• Weighted blanket used to apply gentle, even pressure that mimics hugging or being hugged</li> <li>• Encourages comfort/relaxation</li> <li>• Applies pressure that can promote sensory regulation in individuals with SPD or autism</li> <li>• Blanket should be 10% of body weight</li> <li>• Price: between \$25-\$50</li> <li>• <a href="#">Amazon: Weighted Blanket</a></li> </ul>
<b>Sensory Avoiding</b>	<ul style="list-style-type: none"> <li>• Vinyl flooring backed with foam and has a cushioned, flexible surface for sound reduction</li> <li>• Thick Rugs throughout home to dampen sound</li> <li>• Solid deep color &amp; bedroom, limited decor</li> <li>• Open floor plan &amp; reduce clutter</li> <li>• Quiet room in home</li> </ul>	<ul style="list-style-type: none"> <li>• Individuals who are more rigid in their environment</li> <li>• If individual overwhelmed easily by auditory, visual, and tactile input, provide sound reducing modifications</li> </ul>	<p><b>Weighted blanket</b></p> <ul style="list-style-type: none"> <li>• Weighted blanket used to apply gentle, even pressure that mimics hugging or being hugged</li> <li>• Encourages comfort/relaxation</li> <li>• Applies pressure that can promote sensory regulation in individuals with SPD or autism</li> <li>• Blanket should be 10% of body weight</li> <li>• Price: between \$25-\$50</li> <li>• <a href="#">Amazon: Weighted Blanket</a></li> </ul>