

BEST PRACTICES VIRGINIA CAREER PATHWAYS

Sensory Aids

According to the American Occupational Therapy Association, occupational performance difficulties due to sensory modulation challenges or poor integration of sensation can result from difficulties in how the nervous system receives, organizes, and uses sensory information from the body and the physical environment for self-regulation, motor planning, and skill development. These problems affect self-concept, emotional regulation, attention, problem solving, behavior control, skill performance, and the capacity to develop and maintain interpersonal relationships. In adults, they may negatively affect the ability to parent, work, or engage in home management, social, and leisure activities.

Sensory integration refers to both a theory and an intervention developed by Occupational Therapist A. Jean Ayres (1972). Based on the relationship between the brain and behavior, and described by Ayres as 'the organization of sensory input for use' (Ayres 1979). Sensory Strategies, based on SI Theory include Remedial intervention; Accommodation / Adaptions; Sensory Diet Programs; Environmental Modifications; Education. The use of off-the-shelf tools and sensory toolkits and environmental adaptations has been used for many years, but evidence based for these strategies is varied. The recommendation is to base sensory-based interventions on thorough assessment and individualized according to the person's sensory modulation and integration problems. For longer-term use, the recommendation is performance of periodical evaluations for their effect on the individual's participation in daily life (Case-Smith and Schaaf 2012).

This list is not a complete representation of all sensory devices available. The items can be consolidated into a "kit" and used by an OT to determine if an individual finds them useful for school or on the job. These devices may be useful for people with learning disabilities, autism, ADHD, mental health issues, etc. Sensory items can be added and research information can be updated as more information becomes available. Note: This list does not contain any electronic devices that can be very useful.

Product Name & Photo	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Large Weighted Lap Pad (Vinyl)	\$44.99 on Sensory Goods.com	The Weighted Lap Pad is used to provide self- regulation in children and adults. This helps keep individuals calm and organized in a variety of stressful environments. They are filled with tiny beads of glass, which feel like sand, for the	According to a best evidence statement, which was published by the Cincinnati Children's Hospital Medical Center, the body of evidence to support the therapeutic use of pressure devices is inconsistent and low (Brevoort, Brennan, & McQuiddy, 2012).	Proprioception - Deep pressure provides sensory information to muscles and joints promoting the individual to sooth, calm, and organize the sensory information. This stimulation will aid in enhancing sensory integration, which helps to improve attention and concentration.

Product Name & Photo	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
		weight and can help in many ways. Also, they are made with the weight evenly distributed throughout the Lap Pad, and they can be wiped down for quick cleaning between users. The best part is that the Weighted Lap Pad looks like a normal Lap Pad, so no one will realize it is for therapy needs.		

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Weighted Neoprene Pressure Vest	\$51.99 on Sensory Goods.com	The Weighted Neoprene Pressure Vest primarily provides deep pressure evenly around the core of the body. The pressure from the Weighted Neoprene Pressure Vest is known to help reduce the response to stimuli. This vest is made from neoprene to be exceptionally strong and adjustable to the amount of pressure needed. The Weighted Neoprene Pressure Vest is a great combination of pressure from the neoprene material and the weight.	As stated in an article regarding the use of weighted vests in a population of individuals with attention difficulties, "Wearing weighted vests truly improves three aspects of attentional performance (inattention, speed of processing and responding, and consistency of executive management)" (Lin, Lee, Chang, & Hong, 2014). According to a best evidence statement, which was published by the Cincinnati Children's Hospital Medical Center, the body of evidence to support the therapeutic use of pressure devices is inconsistent and low (Brevoort, Brennan, & McQuiddy, 2012).	Proprioception - Deep pressure provides sensory information to muscles and joints promoting the individual to sooth, calm, and organize the sensory information. This stimulation will aid in enhancing sensory integration, which helps to improve attention and concentration.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Bead Stress Ball	\$7.99 on Amazon.com	Stress balls are small objects that are filled with some sort of malleable material, such as gel or beads. These are held in the hand while squeezed to release stress, anxiety, or tension. The beads cause the ball to have a unique texture and color.	Unable to locate evidence regarding the use of this item with individuals who have autism spectrum disorder.	Tactile - Exposes individuals to different texture for desensitization. Proprioceptive - Deep pressure from squeezing the ball sends input from the muscles and joints to the brain, which will aid in efforts to organize and calm.
				Visual - Input from watching the beads move within the ball help to draw the individual's focus away from other visual stimuli that may be causing distress or attention issues.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Exheed S3 Anti- Anxiety 360 fidget spinner (2 pack)	\$11.99 on Amazon.com	These are flat structures with a bearing in the center, which spins along the axis. It takes little effort to spin these objects. These are used to reduce anxiety during high stress times. It is known as a mainstream toy/stress relief object, making them commonplace. They are easily held between fingers	Due to a recent surge in popularity, fidget spinners and other self-regulatory occupational therapy toys have yet to be subjected to rigorous scientific research. Thus, their alleged benefits remain scientifically unfounded (Schecter, Shah, Fruitman, & Milanaik, 2017).	Tactile - The movement and texture of the fidget spinner provide tactile input. This input occupies the user's hands to aid in improving attention.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
		making it portable.		

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Dimples excel squeeze stress balls (set of 3)	\$9.98 on Amazon.com	Dimples excel squeeze stress balls are like a traditional stress ball, but it is made of thermoplastic rubber to ensure it keeps its shape. Three different resistances are included, yellow is mild, red is medium, and blue is the hardest. This is squeezed in the palm of the hand to relieve tension or stress. The rubber texture is similar to that of the other stress	Unable to locate evidence regarding the use of this item with individuals who have autism spectrum disorder.	Tactile - The texture of the ball allows the user to focus on a pleasant or familiar feeling when dealing with tension or attention issues. Proprioceptive - Deep pressure from muscles and joints of the hands provide feedback that will aid in redirecting and calming the user.
		ball within this kit.		

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Fidget toy (Pack of 12)	\$ 6.99 on Amazon.com	This product consists of a nylon sleeve which holds a marble. They can be squeezed causing the marble to slide around within. These fidget toys are also	Due to a recent surge in popularity, fidget spinners and other self-regulatory occupational therapy toys have yet to be subjected to rigorous scientific research. Thus, their alleged benefits remain scientifically unfounded (Schecter, Shah, Fruitman, &	Tactile - The nylon sleeve and marble allow the user to experience a variety of textures, one of which is movable. This will allow the user to occupy their hands during many situations.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
		able to be folded, bent, and shaken to occupy the user's hands. This product is portable and easy to carry.	Milanaik, 2017).	Proprioception - Upon squeezing the sleeve deep pressure is sensed. This input will also aid in calming or redirecting the user.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Relieves stress cube for fidgeters	\$8.99 on Amazon.com	The relieve stress cube for fidgeters is a vinyl cube, which has different features on each side. These features promote movements that reduce distractions and anxiety/tension. This cube has two clickers that make no noise and three that are loud. A metal ball turns and clicks while a joystick can be spun on another side. This is easily manipulated in one hand making it less noticeable.	Due to a recent surge in popularity, fidget spinners and other self-regulatory occupational therapy toys have yet to be subjected to rigorous scientific research. Thus, their alleged benefits remain scientifically unfounded (Schecter, Shah, Fruitman, & Milanaik, 2017).	Tactile - Different textures on either side of the box allow the user to experience a variety of input. This allows the individual to use their hands without much thinking involved to keep them on task. The variety of textures also keeps them focused longer.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Tactile Sensory Processing Toys (pack of 4)	\$18.97 on Amazon.com	These toys include different types of balls. Knobby balls are plastic and inflatable with raised bumps covering its outer surface (top left corner). Puffer balls are small and made from rubber with tentacle-like appendages which produce air bubbles when squeezed (bottom right corner). Squishy mesh balls are made from this hyperflex material within a mesh sac, air bubbles form between the mesh when squeezed (top right corner). Lastly, bouncy stretch balls are made from a malleable material that also bounces against surfaces (bottom left corner). These balls can be used in many settings to aid in relieving tension or stress while also providing tactile and proprioceptive input.	Unable to locate evidence regarding the use of this item with individuals who have autism spectrum disorder.	Tactile - A variety of input is received when feeling each texture and the differences in their malleability. This allows the user to keep their hands busy to aid in staying on task. Proprioceptive - The deep pressure produced when squeezing the objects provides input through muscles and joints of the hand to help soothe and calm the user. Visual - This input will be varied due to the different colors of the toys as well as the change in color that can occur through manipulating them (i.e. under pressure of a clenched fist). This information can have calming effects as well as providing a distraction in high stress environments or experiences.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Sensory foot fidget (black band)	\$12.50 on Amazon.com	Sensory foot fidgets include a black elastic band which slips over chair legs and has two tennis balls. The user's feet rest on the tennis balls or on the band and can be bounced or moved without distraction. The user can move their feet quietly while sitting.	Due to a recent surge in popularity, fidget spinners and other self-regulatory occupational therapy toys have yet to be subjected to rigorous scientific research. Thus, their alleged benefits remain scientifically unfounded (Schecter, Shah, Fruitman, & Milanaik, 2017).	Proprioception/Kinesthetic - Pressure is provided to the feet as well as lateral movement of the legs. This stimulation allows the user to relieve tension or anxiety in such a way that is not disruptive to them or others.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Calm colors fidgety feet band (2 pack)	\$23.80 on Amazon.com	Each package of calm colors fidgety feet bands contains one green and one blue band. These are placed on the legs of a chair and the tension can be adjusted using the straps. Pressing firmly or bouncing feet on the band helps to relieve stress or energy. Made from silicone to last longer.	Due to a recent surge in popularity, fidget spinners and other self-regulatory occupational therapy toys have yet to be subjected to rigorous scientific research. Thus, their alleged benefits remain scientifically unfounded (Schecter, Shah, Fruitman, & Milanaik, 2017).	Proprioceptive/Kinesthetic - Pressure is provided to the feet as well as lateral movement of the legs. This stimulation allows the user to relieve tension or anxiety in such a way that is not disruptive to them or others.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
H2H sport unisex compression fit cooling ribbing arm sleeves	\$8.50 on Amazon.com	H2H sport compression sleeves are worn on the arm and add more compression to the user. These sleeves are made of breathable material so that the user does not feel uncomfortable while wearing this for long periods of time.	According to a best evidence statement, which was published by the Cincinnati Children's Hospital Medical Center, the body of evidence to support the therapeutic use of pressure devices is inconsistent and low (Brevoort, Brennan, & McQuiddy, 2012).	Proprioception - Pressure applied to the arms allows input to the brain which will aid in calming the user. This pressure also can help the user to focus on less stressful input.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Fidget works bike chain fidget toy	\$10.97 on Amazon.com	This object consists of interlocking rings with a silicone ring and rust resistant pieces. This fidget toy allows the user to roll and twist the pieces in a quiet and discreet manner. This can be used to lower anxiety and stress in many settings, due to its small size and portability.	Due to a recent surge in popularity, fidget spinners and other self-regulatory occupational therapy toys have yet to be subjected to rigorous scientific research. Thus, their alleged benefits remain scientifically unfounded (Schecter, Shah, Fruitman, & Milanaik, 2017).	Tactile/Kinesthetic - This object allows the user to explore different textures while also moving the pieces. This input occupies the user's hands to enhance focus and attention. The movement also allows the user to relieve tension.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Ark's Chew Tags Discreet Chewable Jewelry	\$24.99 on Amazon.com	This discreet design offers the user an easy-to-access and safe product when they feel the need to chew. Both sides of this jewelry are smooth and made from medical grade, FDA compliant, and lead/phthalate/PV C/BPA/latex-FREE materials. The clasp breaks away for safety purposes as well. This can be chewed during situations that may cause stress or distractions.	Unable to locate research beyond anecdotal evidence regarding the use of chewable jewelry.	Proprioception - The action of chewing provides pressure at the jaw. This input can also impact the way in which individuals move their mouths, control saliva, and produce speech. The act of chewing can soothe the user in times of stress or redirect attention when seeking other sensory input.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Ark's Krypto-Bite Pencil Topper Chewable Tubes	\$19.99 on Amazon.com	These pencil topper chewable tubes are made to slide onto the top of a pencil and are a safe solution for those with oral sensory needs. One end is solid while the other end is a hollow tube. They fit over a standard pencil but are best used with eraser- less pencils. The red one is soft, green is extra tough, and blue is extra-extra tough.	Unable to locate research beyond anecdotal evidence regarding the use of chewable tubes.	Proprioception - The deep pressure that occurs in the jaw muscles and joint can help the user to calm, self- regulate, and focus. Chewing in a rhythmic, repetitive and uniform movement with moderate pressure is thought to activate the reticular formation. The reticular formation is a part of the brain that is linked with alertness.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
ZenSit Adjustable Pocket-Portable Stability	\$29.95 on Amazon.com	The ZenSit adjustable pocket- portable stability is a sensory integration seat which can be used anywhere and is portable. This stability seat encourages better sitting posture and causes the user to engage more muscles while focusing on balance.	As stated in a systematic review, regarding alternative seating, "The results of this review indicate that the use of alternative seating devices does increase attention for students with attention difficulties" (Gouchenor & Poskey, 2017).	Kinesthetic - By providing movement for the core muscles of the trunk the user can better focus. Proprioception - The user will be applying deep pressure on their gluteal muscles which aids in self- regulating and relieving tension.

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Mood Essential Oil Blend Kit 4 10mL roll on	\$39.95 on Amazon.com	This Essential Oil blend kit includes four ready-to-apply essential oil blends: Attention, Uplift, Sensual, and Sleep. Diluted with fractionated coconut oil (FCO) for safe and easy topical application. These can be rolled on to the skin other objects for the user to smell when needed. *Please be aware of skin sensitivities.	A systematic review published in the Asian Pacific Journal of Topical Biomedicine stated, "From above reports and study, we can conclude that aromatherapy is natural and noninvasive gift of nature for humans. It's not only the disease symptoms which are eradicated but the whole body is rejuvenated using aroma. Aromatherapy regulates the physiological, spiritual and psychological upliftment for the new phase of life. This therapy is not only preventive but also can be used in the acute and chronic stages of disease" (Ali, Al-Wabel, Shams, Ahamad, Khan, & Anwar, 2015).	Olfactory - The oils have an aromatherapy effect when inhaled through either the mouth or nose. Effects occur this way due to the oils' interactions with the limbic system. (If applied to the skin it will be absorbed into the bloodstream where it has systemic effects)

Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Gum, Taaffe, Mints, etc	Can be added to the kit as needed	In general, mints have a calming effect, while crunchy food or chewing can help sustain attention	Use of tastes and textures to foster changes in levels of alertness, to decrease oral hypersensitivities or influence hypo-sensitivity patterns, and to increase self-regulation.	Gustatory
Product Name	Price & Where to Find	Definition and Use	Evidence	Area & Effect of Stimulation
Music and visual apps I pods, MP3 players, phones	Can be found on the clients personal devices or recommended devices		Use of sound for changing levels of alertness, to decrease auditory hypersensitivity, and to increase self-regulation. Use of visual stimulation to foster changes in levels of alertness, to decrease visual hypersensitivity, and to increase self-regulation.	Visual and auditory

A special thanks to the Occupational Therapy Students at Murphy Deming College of Health Sciences: Emily Ford, Lauren Chiappe, Sydney Griffin, Brighid Rebolledo and Mary Catherine Smith for their assistance in researching and compiling information for this project, to the DARS / WWRC Occupational Therapist for their suggestions / recommendations, and to the Virginia Assistive Technology System (VATS): https://www.vats.org/

Sources:

Ayres, AJ (1972) Sensory integration and learning disorders. Los Angeles: Western Psychological Services.

- Ali, B., Al-Wabel, N.A., Shams, S., Ahamad, A., Khan, S.A., & Anwar, F. (2015). *Essential oils used in aromatherapy: a systematic review*. Asian Pacific Journal of Tropical Biomedicine, 5(8), 6011-611.
- Brevoort, K., Brennan, A, McQuiddy, V. (2012). Cincinnati Children's Hospital Medical Center: *Best Evidence* Statement for Use of a Weighted or Pressure Device to Modify Behavior in Children with a Sensory Processing Disorder.
- Case-Smith J, Schaaf RC (2012) Response to systematic review of sensory integration therapy for autism spectrum disorder. Available at: www.AOTA.org/news/consumer/response.aspx Accessed 07.02.2013
- Champagne, T. (2010). Sensory modulation & environment: Essential elements of occupation (3rd. ed., rev.) Sidney, Australia: Pearson Assessment.
- Champagne T, Koomar (2012) *Evaluating sensory processing in mental health occupational therapy practice*. OT Practice, 17(5) CE1-7.
- Gouchenour, B. & Poskey. (2017). Alternative seating systems for students with attention difficulties: a systematic review. American Journal of Occupational Therapy, 71(4).
- Lane, S., & Schaaf, R. (2010). Examining the neuroscience evidence for sensory-driven neuroplasticity: Implications for sensory-based occupational therapy for children and adolescents. American Journal of Occupational Therapy, 64, 375–390.
- Lin, H. Y., Lee, P., Chang, W. D., & Hong, F. Y. (2014). *Effects of weighted vests on attention, impulse control, and on-task behavior in children with attention deficit hyperactivity disorder*. American Journal of Occupational Therapy, 68(2), 149-158.
- May-Benson, T. (2009). Occupational therapy for adults with sensory processing disorder. OT Practice, 14(10), 15–19.
- Schecter, R. A., Shah, J., Fruitman, K., & Milanaik, R. L. (2017). *Fidget spinners: Purported benefits, adverse effects* and accepted alternatives. Current Opinion in Pediatrics, doi:10.1097/MOP.00000000000523
- Sensory Integration Global Network. *Ayres Sensory Integration*. Retrieved from http://www.siglobalnetwork.org/ayres-sensory-integration

The content of this document was developed under Virginia's Career Pathways for Individuals with Disabilities grant (#H235N150008) from the Department of Education. However, the contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal government.