

Introduction



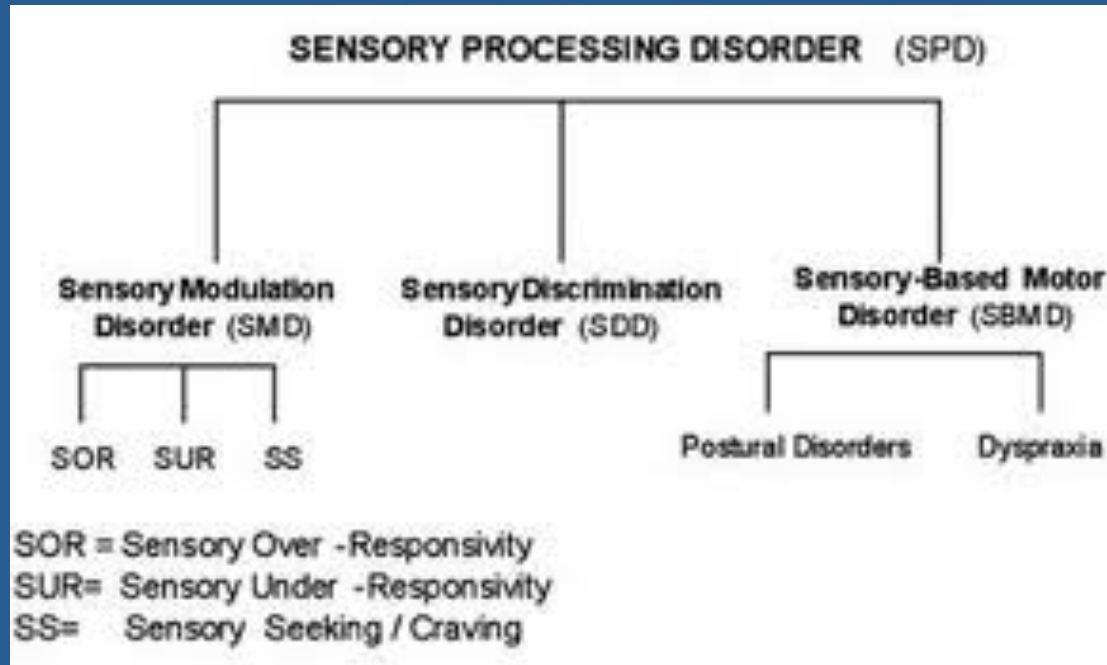
ANXIETY



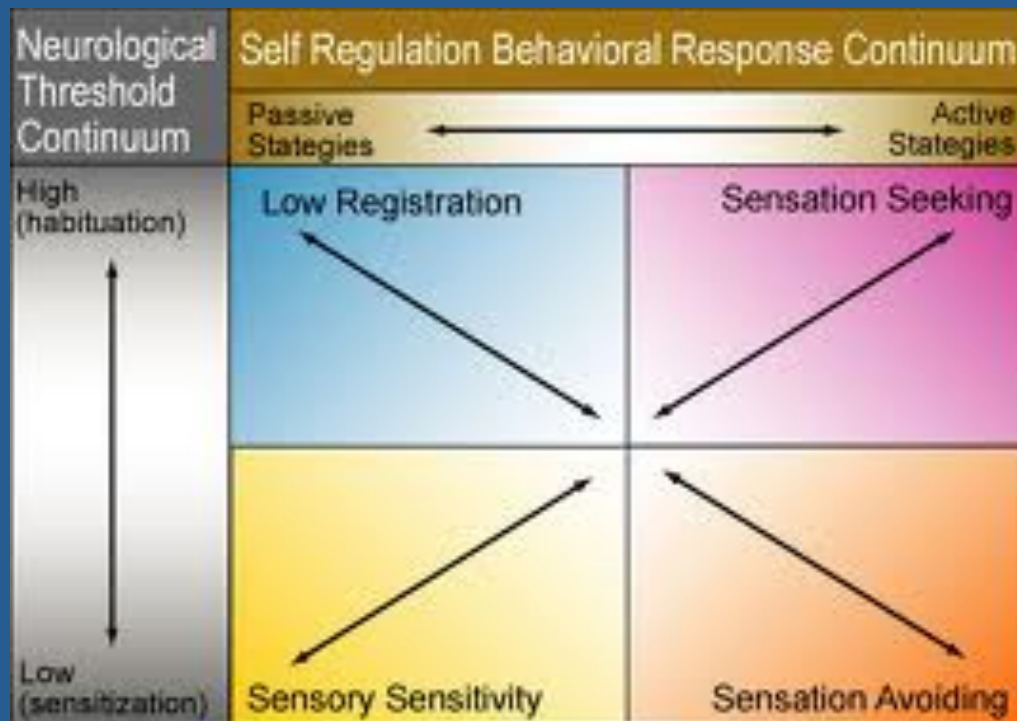
Sensory Modulation



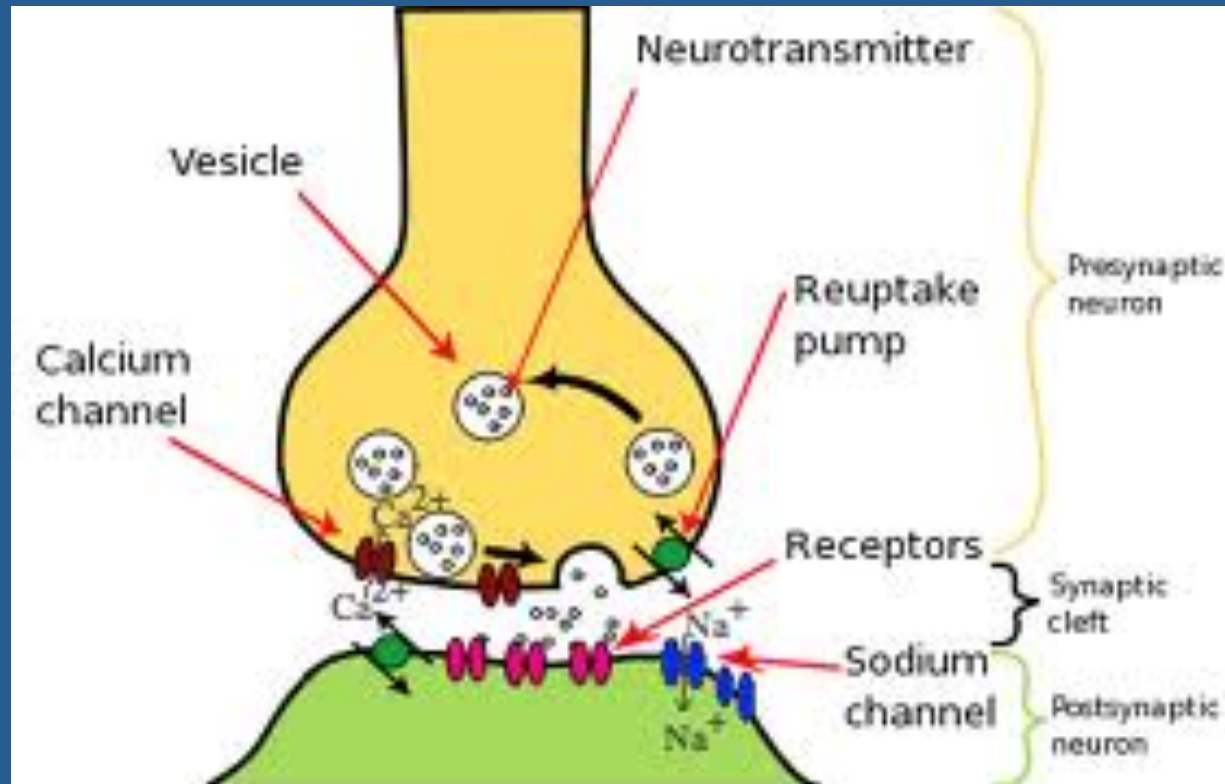
Sensory Processing Disorder



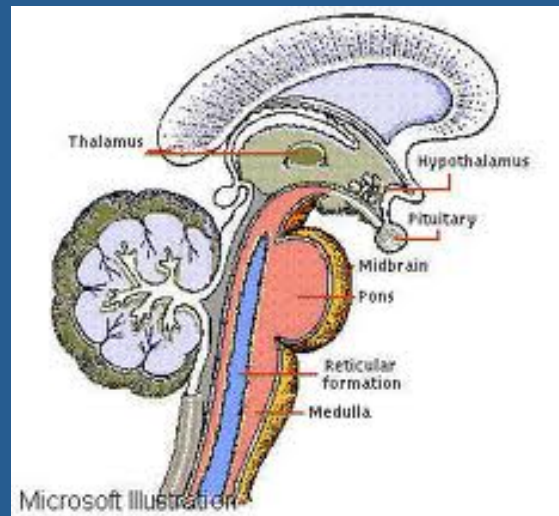
(2005) Sensory Modulation Diagram representation Winnie Dunn



Chemistry!



Homeostasis/Modulation



Chemical Balances

- In terms of modulation, Ayres discussed the balance of both inhibitory and excitatory influences on the brain. According to Ayres, "the combination of facilitatory and inhibitory messages produces modulation which is the nervous system's process of self organization" (1979, p. 44-45).

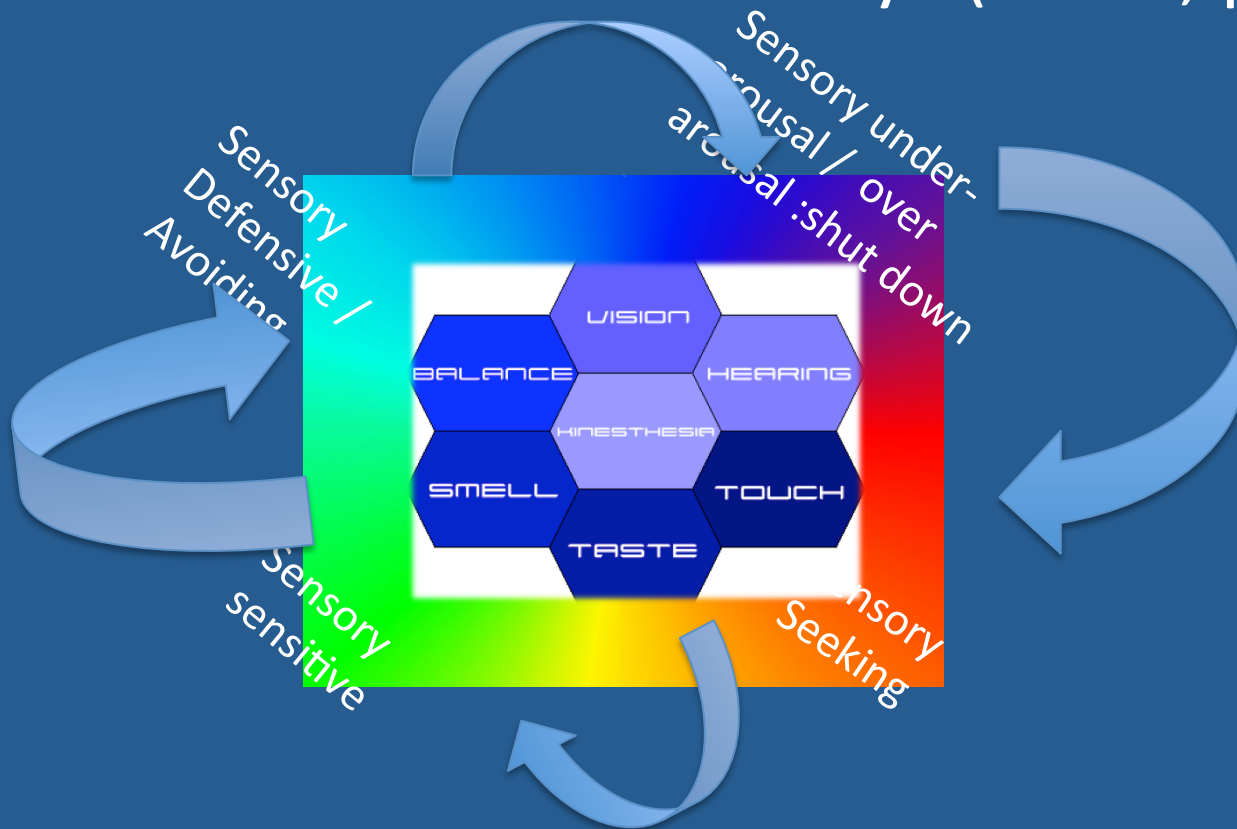


- "Modulation is the process of increasing or reducing neural activity to keep that activity in harmony with all the other functions of the nervous system" (Ayres, 1979, p. 70).

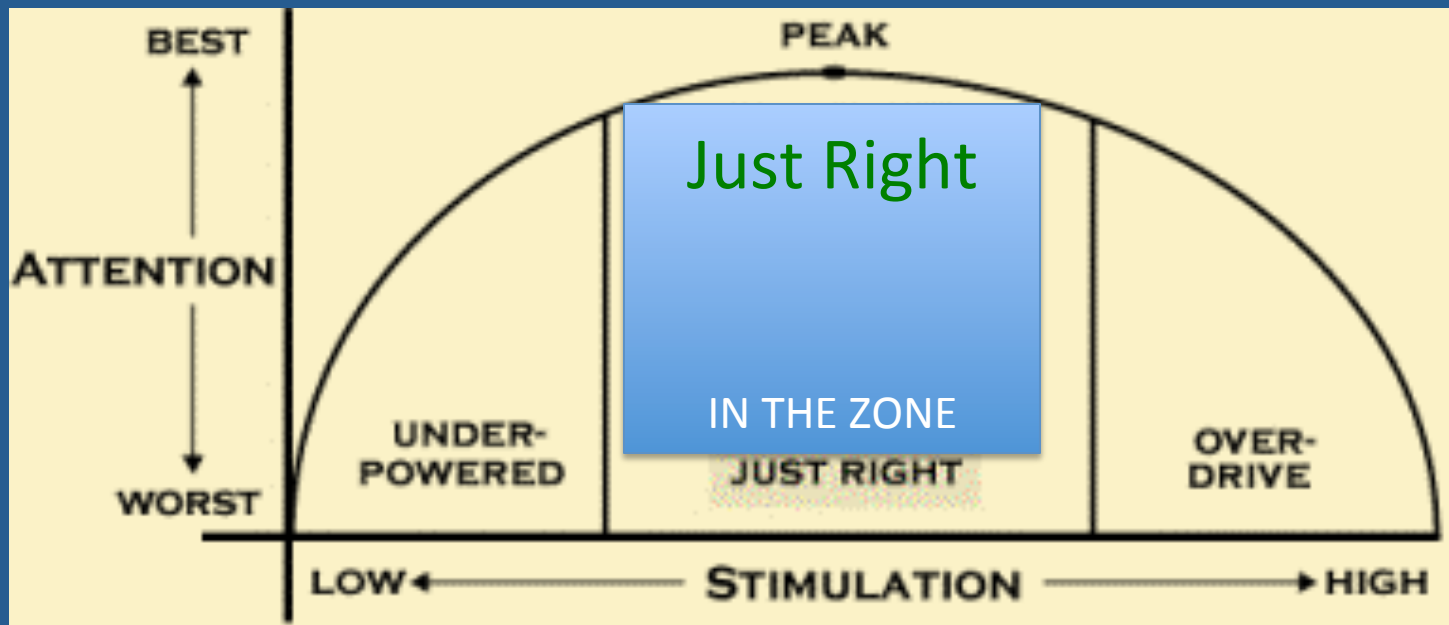


An art and a science

- Ayres defined modulation as the "brain's regulation of its own activity" (1979, p. 182).



The art: getting kids in the zone



How to get kids with fragile x in the zone

- Gentle slow rocking in a rocking chair or hammock

Compression "sandwich" that gives a feeling of being hugged tightly, cuddled and

swaddled: Lay pillows or sofa

cushions on top of the child while he/she is laying down from the neck down, press firmly but gently

- Compression garments are comforting and calming such as tight fitting [Under Armor](#) garments or a [Bear Hug Vest](#)

Wrap up snugly in a blanket or large beach towel

Provide a comfortable retreat area such as a small play tent filled with pillows, bean chairs blanket.

- Mouth comforts: sucking on a sports bottle, drinking through a straw and sweet tastes are relaxing.

Heavy work for the mouth is calming: chewing

Heavy work for the body: wear a heavy backpack or [weighted vest](#), carry a box filled with toys or books, push a box filled with books or bean-bags.

- Squeeze a foam ball, clay, [play doh](#), [putty](#), [koosh ball](#), pinky ball, etc.

Roll your child up in an exercise mat from shoulders to feet and play "make a sausage sizzle": pretend to put on tomato sauce, mustard, etc., by firmly pushing on the sausage sizzle from shoulders to feet, up and down.

- Make a “quiet corner.” Have a tent with a beanbag chair and blanket inside. Use only for quiet things such as reading, or getting composure when upset.

- Adapt the environment: dim the lights, certain wall colors are particularly calming, add scents such as vanilla and lavender, slow moving visual stimulation (lava lamp, rope lamp, bubble tube), slow and rhythmic music.

Activities to alert the CNS

- Fast rocking or swinging
Jumping on a mini-trampoline or bouncing on a therapy ball while seated.

- Jump rope, jumping jacks, [animal walks](#)
Stacking books and other heavy object.
- Playing on playground equipment
Stacking chairs or pushing furniture.

- Compression activities: Wall push ups, push hands together, hug yourself.
- “5 friends”

Mouth Alerts: crunchy, cold, chewy, iced flannel.

SENSORY DIET

- : SCHEDULE OR REGULATING ACTIVITIES THROUGHOUT THE DAY.
- USE ICONS OR PICTURES REPRESENTING THE SENSORY ACTIVITY ON A VELCRO BOARD.
- STRUCTURE VS CHOICE

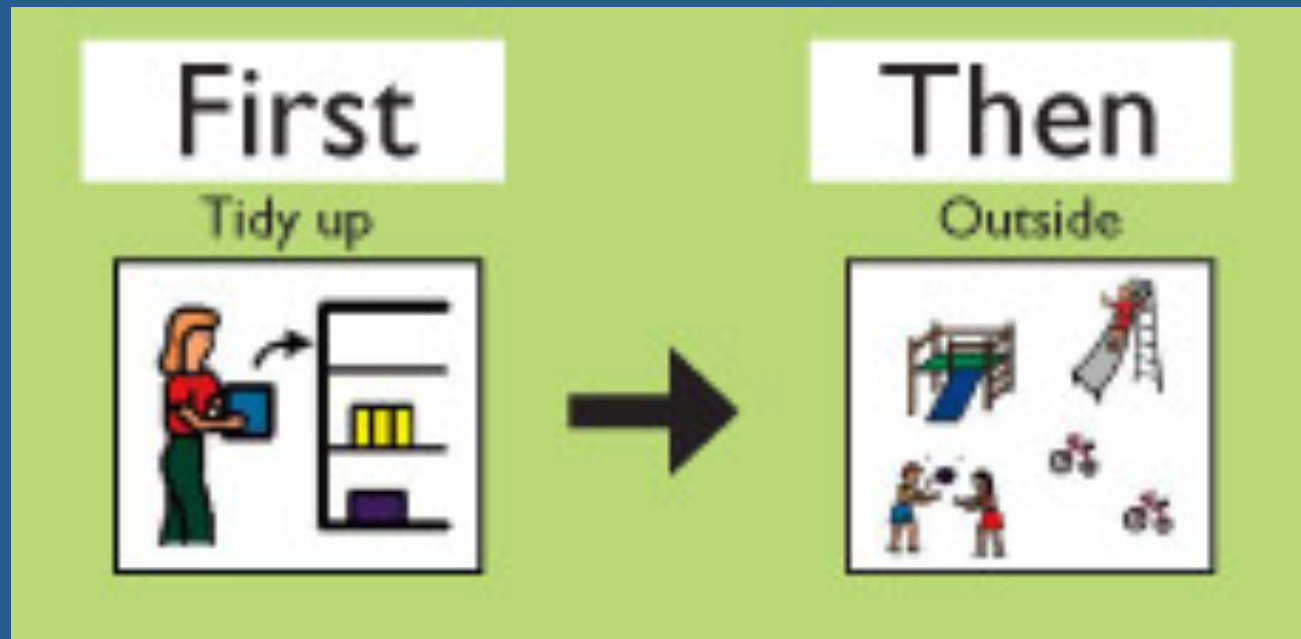
AN EXAMPLE OF A SENSORY DIET

- **In the Morning**
- Massage feet and back to help wake up
- Listen to recommended therapeutic listening CD
- Use vibrating toothbrush and/or vibrating hairbrush
- Eat crunchy cereal with fruit and some protein
- Spin on Dizzy Disc Jr. as directed
- Jump on mini-trampoline as directed
- **After school**
- Go to playground for at least 30 minutes
- Push grocery cart or stroller
- Spinning as directed
- Mini-trampoline. Add variety: have him play catch or toss toys into a basket while jumping.
- Massage feet to “reorganize,” use therapy putty, make “body sandwiches,” wheelbarrow walk
- Do ball exercises as directed
- Listen to therapeutic listening CD
- Oral work — suck thick liquids through a straw, eat crunchy and chewy snacks, or chew gum before and/or during tabletop activities
- **At dinnertime**
- Help with cooking, mixing, chopping, etc.
- Help set table, using two hands to carry and balance a tray
- Provide crunchy and chewy foods
- **At night**
- Family time: clay projects, painting projects, etc.
- Warm bath with bubbles and calming essential oil
- Massage during reading time

NOW



- THEN....



VIBRATION



WILLBARGER THERAPRESSURE



ORAL TECHNIQUE





LANYARD WITH CHEWY



SLEEP ZONE



PRACTICAL STORIES CASE STUDIES

- OR YOUR CHOICE OF A CASE







CALM- ALERT



SENSATIONAL CLASSROOMS



REFERENCES

- [^](http://www.sodfoundation.net/about-sensory-processing-disorder.html) "Sensory Processing Disorder Explained". SPD Foundation. <http://www.sodfoundation.net/about-sensory-processing-disorder.html>.
- [^](http://findarticles.com/a/articles/mi_hb4384/is_8_43/ai_n45484253/) [Joanne Flanagan \(2009\). "Sensory processing disorder". *Pediatric News*. BNET. \[http://findarticles.com/a/articles/mi_hb4384/is_8_43/ai_n45484253/\]\(http://findarticles.com/a/articles/mi_hb4384/is_8_43/ai_n45484253/\).](http://findarticles.com/a/articles/mi_hb4384/is_8_43/ai_n45484253/)
- [^](http://priory.com/psvch/ICD.htm) <http://priory.com/psvch/ICD.htm>
- [^](http://www.behavenet.com/caosules/disorders/dsm4TRclassification.htm) <http://www.behavenet.com/caosules/disorders/dsm4TRclassification.htm>
- [^](http://www.mi-aimh.org/documents/crosswalkaccess_eligibilitywithdch_title__121807.pdf) http://www.mi-aimh.org/documents/crosswalkaccess_eligibilitywithdch_title__121807.pdf
- [^](http://www.thespiralfoundation.org/pdfs/Fact%20Sheet%20for%20Educators.pdf) <http://www.thespiralfoundation.org/pdfs/Fact%20Sheet%20for%20Educators.pdf>
- Natalie Russo et al. Multisensory processing in children with autism: high-density electrical mapping of auditory-somatosensory integration. *Autism Research*, August 17, 2010
- Rogers SJ, Ozonoff S (2005). "Annotation: what do we know about sensory dysfunction in autism? A critical review of the empirical evidence". *J Child Psychol Psychiatry* **46** (12): 1255–68. [doi:10.1111/j.1469-7610.2005.01431.x](https://doi.org/10.1111/j.1469-7610.2005.01431.x). PMID 16313426.
- Ben-Sasson A, Hen L, Fluss R, Cermak SA, Engel-Yeger B, Gal E (2008). "A meta-analysis of sensory modulation symptoms in individuals with autism spectrum disorders". *J Autism Dev Disord* **39** (1): 1–11. [doi:10.1007/s10803-008-0593-3](https://doi.org/10.1007/s10803-008-0593-3). PMID 18512135.
- Williams DL, Goldstein G, Minshew NJ (2006). "Neuropsychologic functioning in children with autism: further evidence for disordered complex information-processing". *Child Neuropsychol* **12** (4–5): 279–98. [doi:10.1080/09297040600681190](https://doi.org/10.1080/09297040600681190). PMC 1803025. PMID 16911973. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pmcentrez&artid=1803025>.
- Segal MM, Rogers GF, Needleman HL, Chapman CA (2007). "Hypokalemic sensory overstimulation". *J Child Neurol* **22** (12): 1408–10. [doi:10.1177/0883073807307095](https://doi.org/10.1177/0883073807307095). PMID 18174562.
- "Sensory integrative therapy". Research Autism. <http://www.researchautism.net/interventionitem.ikml?print&ra=28&infolevel=4>. Retrieved 2007-10-08.
- Baranek GT (2002). "Efficacy of sensory and motor interventions for children with autism". *J Autism Dev Disord* **32** (5): 397–422. [doi:10.1023/A:1020541906063](https://doi.org/10.1023/A:1020541906063). PMID 12463517.
- Schaaf RC, Miller LJ (2005). "Occupational therapy using a sensory integrative approach for children with developmental disabilities". *Ment Retard Dev Disabil Res Rev* **11** (2): 143–8. [doi:10.1002/mrdd.20067](https://doi.org/10.1002/mrdd.20067). PMID 15977314.
- Hodgetts S, Hodgetts W (2007). "Somatosensory stimulation interventions for children with autism: literature review and clinical considerations". *Can J Occup Ther* **74** (5): 393–400. PMID 18183774.
- URWIN Rosalind; BALLINGER Claire; Title: The effectiveness of sensory integration therapy to improve functional behaviour in adults with learning disabilities: five single-case experimental designs. Reference: British Journal of Occupational Therapy, 68(2), February 2005, pp.56-66.
- Brown, S; Shankar, R; Smith, K "Borderline personality disorder and sensory processing impairment" *Progress in Neurology and Psychiatry* Volume 13, Issue 4, pages 10–16, July/August 2009
- Brown S, Shankar R, Smith K, et al. Sensory Processing Disorder in mental health. *Occupational Therapy News* 2006;May:28-29.
- Dabrowski, K. (1967). *Personality Shaping Through Positive Disintegration*. Boston, Mass.: Little Brown.
- Lysy, K. Z., and M. M. Piechowski. (1983). "Personal Growth: An Empirical Study Using Jungian and Dabrowskian Measures." *Genetic Psychology Monographs* 108: 267-320.
- Piechowski, M. M. (1986). "The Concept of Developmental Potential." *Roeper Review* 8, no. 3: 190-97.
- Piechowski, M. M., and N. B. Miller. (1995). "Assessing Developmental Potential in Gifted Children: A Comparison of Methods." *Roeper Review* 17: 176-80.