

ALERT PROGRAM® LITERATURE AND RESEARCH: Published Literature, Research, and Resources

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TherapyWorks, Inc. (TWI) is committed to providing consumers with available evidence, research, and published literature related to the Alert Program®. We hope that families and practitioners will find this published information and objective data helpful to support appropriate use and application of the Alert Program®. This document is updated periodically. The following list of literature, articles and research is organized into four major sections:

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SECTION I References Specifically Addressing the Alert Program®

A. Refereed Professional Journals

Barnes, K.J., Beck, A.J., Vogel, K.A., Grice, K.O., & Murphy, D. (2003). Perceptions regarding school-based occupational therapy for children with emotional disturbances. *American Journal of Occupational Therapy, 57*, 337-341.

Comment: This study examines the appropriateness, extent and types of services provided by occupational therapists to children with emotional disturbances in public schools. Eighty-seven percent of all respondents supported school OT for students with emotional disturbances. The most commonly reported intervention was sensory integration with nearly 47% using the Alert Program® individually and in groups.

Barnes, K. J., Vogel, K. A., Beck, A. J., Schoenfeld, H. B. & Owen, S. V. (2008). Self-regulation strategies of children with emotional disturbance, *Physical & Occupational Therapy In Pediatrics, 28:4*, 369-387.

Comment: An 8-week-long use of the Alert Program® within the classroom setting for 7 children with emotional disturbances demonstrated improvement on all measures as compared to the control group.

Bertrand, J. (2009). Interventions for children with fetal alcohol spectrum disorders (FASDs): Overview of findings for five innovative research projects. *Research in Developmental Disabilities, 30*, 986-1006.

Comment: This article provides a general intervention framework for individuals with fetal alcohol spectrum disorders (FAS), and the methods and general findings of five specific intervention research studies conducted within this framework. One study, conducted by Children's Research Triangle of Chicago, developed and evaluated a program of neuro-cognitive habilitation, adapted from the Alert Program®. Results from the 78 children and families studied, suggest the Alert Program® as a promising approach for helping children with FAS improve their self-regulation and executive functioning skills.

Colangelo, C. (2008). Test Drive: Introducing the Alert Program® through song (Reviews, Tidbits and Tools). *Journal of Occupational Therapy, Schools, & Early Intervention, 1:1*, 70-71.

Comment: The author provides a review of the publication "Test Drive: Introducing the Alert Program® through Song". From extensive experience as a school-based therapist, the author shares her perspectives on the value and use of the Alert Program® with a school-aged population.

B. Professional Newsletter/Magazines

AA Digest Staff. (2007, September/October). Interview: Meet the Alert Program® founders. *Autism-Asperger's Digest Magazine*, 42-43.

Comment: This article presents a summary of an AA Digest interview with the Alert Program® creators Sherry Shellenberger, OTR and Mary Sue Williams, OTR.

AA Digest Staff. (2002, May-June). Featured Book: Take Five! Staying alert at home and school. *Autism-Asperger's Digest Magazine*, 24-26.

Comment: The Take Five! publication is featured with portions of the text quoted and resources provided.

Argabrite Grove, Rebecca E. (2002, March 25). Embracing our psychosocial roots. *OT Practice*, 21-25.

Comment: The Alert Program® is described as one of several valuable tools available to the OT when addressing psychosocial issues of a child in school-based practice.

Barnes, K., Schoenfeld, H., Garza, L., Johnson, D., & Tobias, L. (2005, June). Preliminary: Alert Program® for boys with emotional disturbances in the school setting. *American Occupational Therapy Association School System Special Interest Section Quarterly*, 12, 1-4.

Comment: This newsletter article presents results of a pilot study using the Alert Program® with children with emotional and sensory processing problems.

Bazyk, S. (2010, September 27). Promotion of positive mental health in children and youth with developmental disabilities. *OT Practice*, CE-1-8.

Comment: Presents opportunities for OT practitioner to provide activities that promote mental health in children and youth with developmental disabilities. An overview of strategies for promotion, prevention and intervention is presented. The use of the Alert Program® for promotion and prevention is suggested.

Bazyk, S., Schefkind, S., Brandeburger Shasby, S., Olson, L., Richman, J., & Gross, M. (2008) *FAQ on school mental health for school-based occupational therapy practitioners*. Retrieved September 3, 2009, from AOTA Web site: www.aota.org/.../PracticeAreas/Pediatrics/Tools/FAQSchoolMH.aspx

Comment: The role of the OT is described in advancing school mental health (SMH). The Alert Program® is presented as a sensory processing approach that assists practitioners in identifying sensory preferences and strategies to enhance attention, behavioral organization and everyday functioning.

Cahill, S.M. (2006). Classroom management for kids who won't sit still and other "bad apples". *Teaching Exceptional Children Plus*, 3(1) Article 6. Retrieved July 25, 2007, from <http://escholarship.bc.edu/education/tecplus/vol3/iss1/art6/>

Comment: Describes collaboration between a school-based occupational therapist and a veteran expert teacher in applying the Alert Program® to an entire classroom. It concludes with how the Alert Program® became an effective classroom management system.

Dolde, K. (2008, September). Sensory challenges and sensory solutions for children and caregivers. *News-line for Occupational Therapists & COTAs*, 7(9F). Retrieved October 1, 2008, from www.news-line.com.

Comment: Describes an occupational therapist's, Christy Kennedy, OTR/L, application of the Alert Program® with children in her private practice in Decatur, Georgia. Anecdotal information provided.

Kerr, T. (1995, March 6). How Does Your Engine Run?®. *ADVANCE for Occupational Therapists*, 12, 50.

Comment: Provides an overview of the Alert Program®, including the program's development and application.

Laurel, M. (1997, August 18). Changing level of alertness to enhance life success. *ADVANCE for Speech-Language Pathologists & Audiologists*, 7, 10.

Comment: This article is written from a Speech and Language Pathologist's perspective and includes an overview of the Alert Program®.

Laurel, M. (2000, March/April). Bringing sensory integration home: A parent perspective on the Alert Program® for Self Regulation. *Autism/Asperger's Digest Magazine*, 14-15.

Comment: Describes a touching story from a parent's perspective using the Alert Program®, along with a one-page summary of the program.

Maas, C., Mason, R., & Candler, C. (2008, Oct. 20). "When I get mad..." An anger management and self-regulation group. *OT Practice*, 9-14.

Comment: Describes the development and outcome evaluation of a collaborative interdisciplinary anger management/self-regulation program implemented to a group of children in the public schools. The Alert Program®, was chosen due to its success with children who demonstrate sensory processing/modulation problems.

Pliscofsky, G. & Cashriel, C. (2006, Oct. 16). Playing together. *ADVANCE for Occupational Therapists*, 22-23.

Comment: Describes a preschool play therapy group where the Alert Program® was incorporated.

Rynaski, H. (1994, November 24). How Does Your Engine Run? *OT Week*, 8, 20-22.

Comment: Describes Williams and Shellenberger's work in the Gallup NM Public Schools, the development of the Alert Program® and an overview of the program.

Salls, J. & Bucey, J. (2003, March 10). Self-regulation strategies for middle school students. *OT Practice*, 11-16.

Comment: Describes incorporation of the Alert Program® into a middle school curriculum.

Samelstad, K. & Hacker, C. (1996, December 5). How Does Your Engine Run? *OT Week*, 10. 14-15.

Comment: Describes two occupational therapists' successful experiences using the Alert Program® in a Michigan school and in a North Carolina private practice.

Sarracino, T., Dell, L. & Milchick, S. (2002, January 14) Autism spectrum disorders: Integrating methodologies and team efforts. *OT Practice*, 13-17.

Comment: Highlights some of the key elements of strategies used by occupational therapists when working with children with autism. The Alert Program® was referenced as a means to help children maintain optimal levels of arousal and attention.

Schoonover, J. (2002, September 16). Teaching social skills. In Y. Swinth & B. Hanft (eds), *School-based practice: Moving beyond 1:1 service delivery*. *OT Practice*, 18-19.

Comment: A case example is provided to demonstrate how the Alert Program® may be used to improve social skills of children in a school-based program.

Scott, K.W. (2010, June 28). My sensory world. *OT Practice*, 18-20.

Comment: Author emphasizes the important contribution of occupational therapy practitioners in helping clients learn and practice strategies to help regulate fragile nervous systems. The Alert Program® is introduced as a option for intervention.

Stancliff, B. (1998, December). OT can help parents and teachers deal with ADHD: Understanding the "whoops" children. *OT Practice*, 18-25.

Comment: Defines ADHD using a case study perspective. One of the treatment modalities discussed is the Alert Program®.

Williams, M.S. & Shellenberger, S. (1994, September). The Alert Program™ for self-regulation. *American Occupational Therapy Association Sensory Integration Special Interest Section Newsletter*, 17, 1-3.

Comment: This four page detailed article is designed to give occupational therapists a comprehensive summary of the Alert Program® and gives excerpts from the Leader's Guide and Introductory Booklet.

Williams, M.S. & Shellenberger, S. (2000, March). How Does Your Engine Run? The Alert Program™ for Self-Regulation. *Autism-Asperger's Digest Magazine*, 14.

Comment: Provides brief synopsis about the Alert Program® that precedes the article (same magazine) by Marci Laurel about the parent perspective on the Alert Program®.

Williams, M.S. & Shellenberger, S. (2002, May/June). Take Five! Staying alert at home and school. *Autism-Asperger's Digest Magazine*, 24-26.

Comment: This three-page article provides sample information about the Take Five! publication in a manner accessible to all readers.

Winkle, M. (2008, June 30). Using AAT in corrections and residential facilities. *OT Practice*, 20-22.

Comment: Describes the use of animal assisted therapy (AAT) in corrections facilities, residential treatment centers and reintegration centers. The author further describes how the Alert Program® is adapted to assist student trainees learn about themselves as well as their dog.

C. Books/Manuscripts/Professional Texts

Frick, S., Frick, R., Oetter, P. & Richter, E. (1996). *Discovering the developmental significance of the mouth: "Out of the mouth of babes"*. (p. 27). Stillwater, MN: PDP Press, Inc.

Comment: An extremely useful book that provides an overview of the therapeutic significance of the mouth for facilitating normal development, including self-regulation. The Alert Program® is introduced (page 27) as a resource for helping learn self-regulation.

Kramer, J.G. (1999). Sensory integration frame of reference: Theoretical base, function/dysfunction continua, and guide to evaluation. In *Frames of reference for pediatric occupational therapy, 2nd ed.* (pp. 119-204). Philadelphia, PA: Lippincott.

Comment: Provides a good overview of the Theory of Sensory Integration. Includes discussion of the use of the Alert Program® for children with sensory system modulation issues (p. 185).

Mauro, T. (2006). *The everything: Parent's guide to sensory integration disorder* (pp. 279-280). Avon, MA: F+W Publications, Inc.

Comment: This book contains information about the Alert Program® (chapter 24): Helping Children Manage Their Sensory Needs.

Muhlenhaupt, M. (2008). School-based practice: Enabling participation. In Crepeau, E.B., Cohn, W.S. & Boyt Schell, B.A., *Willard and Spackman's occupational therapy, 11th ed.* (pp. 890-895). Philadelphia: Lippincott Williams & Williams.

Comment: Using a case study (pp 894-895), the author demonstrates the use of the Alert Program® with a child in the school system.

Northern Territory Government Australia. (2001). *Learning through the senses resource manual: The impact of sensory processing in the classroom*. Department of Health and Community Services: Northern Territory Government Australia.

Comment: Discusses the use of the Alert Program® superimposed onto another intervention model (pp. 16-21).

Oetter, P., Richter, E.W., & Frick, S.M. (1988). *M.O.R.E. Integrating the mouth with sensory and postural functions*. Hugo, MN: PDP Press, Inc.

Comments: This publication, based on the Theory of Sensory Integration, provides strong theoretical background, developmental issues, and strategies related to the suck, swallow, and breathe synchrony. The Alert Program® is introduced in the context of self-regulation (p. 27).

Parham, D. & Mailloux, Z. (2005). Sensory integration. In Case-Smith, J., *Occupational therapy for children, 5th ed.* (pp. 356-409). St. Louis, MO: Mosby.

Comment: Use of the Alert Program® is discussed in the assessment and consultation section (page 395).

Rotz, R. & Wright, S.D. (2005). *Fidget to focus--Outwit your boredom: sensory strategies for living with ADD*. Lincoln, NE: iUniverse.

Comment: The authors (clinical psychologists) share their experiences with children with ADD and sensory processing deficits. Authors advocate for occupational therapy and the Alert Program® (pp. 21-23).

Schneider, C.C. (2001). *Sensory Secrets: How to jump-start learning in children*. Siloam Springs, AR: Concerned Communications.

Comment: This publication addresses sensory processing deficits related to learning. A description of the Alert Program® and its value for children (p. 116) is provided.

Schwab, D. (1999). Reframing Perceptions: How Children with FAS/E Sense the World. In Mayer, L. (Ed.) *Living and working with fetal alcohol syndrome/effects*. Winnipeg: Interagency FAS/E Program.

Comment: Chapter describing sensory integration as it relates to individuals with fetal alcohol syndrome. Also introduces the Alert Program® as a valuable tool for use by individuals with fetal alcohol syndrome (pp. 79-82; 97-100).

Shellenberger, S. & Williams, M.S. (2002). "How does your engine run?"™: The Alert Program® for self-regulation. In A.G. Fisher, E.A. Murray, & A.C. Bundy (Eds.) *Sensory integration: Theory and practice* (pp. 342-345). Philadelphia, PA: F.A. Davis.

Comment: Within a text on the Theory of Sensory Integration, the authors present the Alert Program® in Chapter 14: Alternative and Complementary Programs for Intervention.

Smith-Roley, S. & Jacobs, S.E. (2008). Sensory integration. In Crepeau, E.B., Cohn, W.S. & Boyt-Schell, B.A., *Willard and Spackman's occupational therapy*, 11th ed. (pp.792-817). Philadelphia: Lippincott Williams & Williams.

Comment: The Alert Program® is listed as a complementary approach to traditional sensory integration methods (p. 805).

D. Un-published Graduate Theses/Dissertations

Boblitt, K. (2007). *Effectiveness of a teacher in-service for introducing sensory strategies in the general education classroom*. Unpublished master's thesis, San Jose State University. San Jose, California.

Comment: Study evaluates the effectiveness of a 2 hour Alert Program®(AP) in-service on teacher's perception of AP interventions. Results suggested that teachers began to interpret children's behaviors related to inattention differently. Teachers perceived AP sensory strategies used to support self-regulation as being "effective".

Chiodo, P.G. (2010). *Outcomes on attention with an implementation of the Alert Program® in a school-based setting*. Unpublished Evidence-Based Occupational Therapy Scholars Capstone, Chatham University. Pittsburgh, PA.

Comment: A program evaluation was completed on the implementation of the Alert Program® in self-contained language learning disability classrooms (first through third grades). Both quantitative and qualitative outcomes demonstrated an increase in the students' (sample size of 8) attention to task and a decrease in the amount of redirection required during activities. Additionally, results demonstrated an improved ability of the teachers to recognize the impact of sensory interventions on attention. Contact information: PChiodoOTR@aol.com

Clark, M., Pritchett, M.D., & Vandiver, A. *The effects of the Alert Program® on communication and interaction skills of adults with severe and persistent mental illness in a community mental health setting*. Unpublished master's thesis, Brenau University, Gainesville, Georgia.

Comment: This study investigated the effects of the Alert Program® on communication and interaction skills of adults with severe and persistent mental illness. The sample of 8 adults was obtained from a community mental health setting. Findings of the study were found to be statistically significant with increased communication and interaction skills documented. Analysis of results indicated that the Alert Program® was the main contributing factor for increased scores. This has significant implications for OT in that it provides evidence that provision of sensory regulation techniques can help persons with mental illness to better attend and participate.

Maddaleni, A.L. (2005). *The effects of the Alert Program® on attention and participation of children in inclusion classrooms*. Unpublished master's thesis, University of New Mexico, Albuquerque, New Mexico.

Comment: Study examines the effect of the Alert Program® on attention and participation of children, with self-regulation difficulties, in an inclusion classroom. Results suggest that the Alert Program® provides some benefits to children with arousal and attention difficulties.

Oliver, J., Martin, L, Davis, G. & Scheerer, C. (2005). *Use of sensory-based techniques for increasing time on task in adults with mental retardation*. Unpublished thesis, Xavier University, Cincinnati, Ohio.

Comment: Study analyzes sensory strategies (adaptation of Alert Program®) for increasing time on task and work production in adults with mental retardation. Three case studies presented; increase in time on task and work production noted but not significantly.

Prescott, S.L. (2002). *Measuring change in paediatric occupational therapy: The Alert Program®*. Unpublished BSc. Thesis, Queen Margaret University College, Edinburgh, Scotland.

Comment: Study incorporated mixed methodology, using the Model of Human Occupation as a framework to evaluate the effectiveness of the Alert Program®. Results indicated improvement in several occupational performance areas, particularly at home.

Quine-Smith, M. (2002). *Occupational therapy and literacy*. Unpublished master's thesis, University of New Mexico, Albuquerque, New Mexico.

Comment: Research focused on the role of school-based OT in literacy programs. A significant result of surveying OT's reflected that the Alert Program® was one of the two most widely used tools in school-based practice.

Verno, B.E. (2008) *The effectiveness of the Alert Program® in the public schools as reported by occupational therapists*. Unpublished master's thesis, James Madison University. Harrisonburg, Virginia.

Comment: This study evaluated the effectiveness of the Alert Program® as perceived by occupational therapists. 96.6% of respondents reported that use of the AP improves students' ability to maintain attention to task during class activities.

E. Popular Press

McCrary, A. (2003, September 8). Teacher uses inflatable ball chairs to help pupils stay focused on work. *Pensacola News Journal*. p. C9-8.

Comment: This article describes how a teacher incorporated information from the two day Alert Program® lecture to support students in her classroom.

"How Does Your Engine Run?" for Self-Regulation. *Families Online Magazine*. Retrieved January 2008, from www.FamiliesOnlineMagazine.com/alert-program.html

Comment: Families Online Magazine, which offers families help from parenting, health, and child development experts, provides an overview of the history and focus of the Alert Program®.

McIlroy, A. (2011, May 27). Rewiring the brains of children with fetal alcohol syndrome. *Globe and Mail*. Retrieved June 7, 2011, from <http://www.theglobeandmail.com>

Comment: This is a newspaper article highlighting local research being done. The principles of the Alert Program® are applied in three classrooms for children with FASD at David Livingstone public school in Winnipeg. The Canadian Institutes of Health Research and Canadian Foundation on Fetal Alcohol Research funded this 12-week program, directed by researchers from Toronto's Hospital for Sick Children. Preliminary results are to be presented in September 2011.

Mauro, T. (2006). Book Review: "How Does Your Engine Run?" The Alert Program™ for self-regulation. *About.com: Parenting Special Needs*. Retrieved August 25, 2007, from www.SpecialChildren.About.com/od/sensoryintegration/gr/engineerun.htm

Comment: Provides a review of TherapyWorks, Inc. publication titled *An Introduction to "How Does Your Engine Run?" The Alert Program® for Self-Regulation (booklet)*.

Morris, M. Sensory diet vs. The Alert Program™ ("How Does Your Engine Run"): What's the difference and how can they help my child? Retrieved July 3, 2008 from www.Sensory-Processing-Disorder.com/how-does-your-engine-run.html

Comment: From a parent's perspective, the author discusses the difference between a sensory diet (created by others) and the Alert Program® (teaching self-regulation)

Murphy, A.P. & Schultz, K. *Kids' nasty habits are good. Nasty Habits: A Blessing in Disguise?* Retrieved February 8, 2002, from <http://abcnews.go.com/GMA/AmericanFamily/story?id=126358&page=1>

Comment: (Emphasis on "GENERAL" sensorimotor strategies). A lay-person's introduction regarding children's use of sensory strategies (hair twirling, sucking thumb, etc.) to a child's ability to attend and self-regulate. The Alert Program is specifically mentioned in this article.

SECTION II

Articles on the Effectiveness of Sensorimotor Strategies that Support Self-Regulation, Learning and Living

The following articles are organized alphabetically with notes in the comment sections that correlate to the Alert Program's five ways to change alert levels: Mouth, Move, Touch, Look, and Listen.

A. Refereed Professional Journals

Abicoff, H. & Courtney, M.E. (1996). The effects of auditory stimulation on the arithmetic performance of children with ADHD and nondisabled children. *Journal of Learning Disabilities, 29:3*, 238-250.

Comment: (Emphasis on "Listen" strategies). This study examined the impact of using either music, speech or silence on arithmetic tasks by children diagnosed with ADHD and non-disabled children. Results indicate a significant increase in number of arithmetic problems attempted and in the number of correct answers for children with ADHD. This provides support for the prevalence of self-regulation issues (underarousal/optimal stimulation theory) of ADHD.

Barros, R.M., Silver, E., & Stein, R.E. (2009). School recess and group classroom behavior. *Pediatrics, 123:2*, 431-436.

Comment: (Emphasis on "MOVE" strategies). Teacher's rating of classroom behavior was better for 8- to 9-year old children who experienced recess than those with none/minimal. These findings support importance of recess for learning and attention.

Brown, R.P., Gerbarg, P.L. (2005). Breathing in the treatment of stress, anxiety, and depression: Part I---Neurophysiologic model. *Journal of Alternative and Complementary Medicine, 11(1)*, 189-201.

Comment: (Emphasis on "MOUTH"/breathing strategies). A model that focuses on yogic breathing as a unique method for balancing the autonomic nervous system and influencing psychological and stress-related disorders is presented. Neurological mechanisms contributing to the state of calm alertness are described.

Brown, R.P., Gerbarg, P.L. (2005). Sudarshan Kriya yogic breathing in the treatment of stress, anxiety, and depression: Part II--- Clinical applications and guidelines. *Journal of Alternative and Complementary Medicine, 11(4)*, 711-717.

Comment: (Emphasis on "MOUTH"/breathing strategies). This study provides evidence to consider Sudarshan Kriya Yoga breathing as a potentially low-risk adjunct treatment. The power of yoga techniques in enhancing well-being, mood, attention, mental focus and stress tolerance is presented. The feasibility of integrating yoga breath techniques into school curricula is explored.

Cheng, M., Boggett-Carsjens, J. (2005). Consider sensory processing disorders in the explosive child: Case report and review. *Canadian Child and Adolescent Psychiatry Review, 14(2)*, 44-48.

Comment: (Emphasis on "General Strategies") Anecdotal evidence is presented suggesting that sensory processing disorders may potentially play a large role in children and youth demonstrating affect regulation problems (e.g. bipolar disorder, oppositional defiant disorder). This article presents a case report where diagnosis and management includes the development of a sensory diet. While not mentioned specifically, the Alert Program provides a structured program to assist professionals in developing such a sensory diet and enhancing self-knowledge with this population. A narrative review of the literature is also provided.

Fertel-Daly, D., Bedell, G., Hinojsa, J. (2001). Effects of a weighted vest on attention to task and self-stimulatory behaviors in preschoolers with pervasive developmental disorders. *American Journal of Occupational Therapy, 55*, 829-840.

Comment: (Emphasis on "MOVE" /proprioception/heavy work/ strategies). This study examined the effectiveness of using weighted vests with preschool children with pervasive developmental disorders on attention and fine motor tasks. Results suggest that vests helped increase attention to task and decrease in self-stimulatory behaviors.

Grandin, T. (1992). Calming effects of deep touch pressure in patients with autistic disorder, college students, and animals. *Journal of Child and Adolescent Psychopharmacology, 2*(1). Retrieved December 28, 2010, from <http://grandin.com/inc/squeeze.html>

Comment: (Emphasis on deep pressure "TOUCH" strategies). Temple Grandin provides an overview of the clinical effects of deep touch pressure and provides a description of her deep touch pressure device ("squeeze machine") that helped her overcome problems of oversensitivity to touch and that allays her nervousness. Additionally, she surveys animal literature on deep touch pressure, revealing similar calming reaction. She concludes with suggestions for clinical use with humans.

Hall, L., & Case-Smith, J. (2007). The effect of sound-based intervention on children with sensory processing disorders and visual-motor delays. *American Journal of Occupational Therapy, 61*, 209-215.

Comment: (Emphasis on "LISTENING" strategies). This study supports the use of therapeutic listening intervention coupled with a sensory diet to improve behaviors (including attention) of children related to sensory processing difficulties.

Hallam, S., Price, J., & Katsarou, G. (2002). The effects of background music on primary school pupils' task performance. *Educational Studies, 28*(2), 111-122.

Comment: (Emphasis on "LISTEN" strategies). This paper presents two studies that explore the effect of music on arithmetic and memory tasks of children aged 10-12. Findings suggest that the effects of music are mediated by arousal and mood versus affecting cognition directly. Practical applications are discussed for primary school and home.

Kercood, S., Grskovic, J.A., Lee, D.L., & Emmert, S. (2007). The effects of fine motor movement and tactile stimulation on the math problem solving of students with attention problems. *Journal of Behavioral Education, 16*, 303-310.

Comment: (Emphasis on "TOUCH" strategies). Results of this study suggest that a fine motor manipulation object reduced excessive motor movement, increased task completion and decreased off-task behavior in student with attention problems. This supports the use of fidgets in helping support attention and learning in select individuals.

Kimball, J., Lynch, K., Stewart, K., Williams, N., Thomas, M., & Atwood, K. (2007). Using salivary cortisol to measure the effects of a Wilbarger protocol-based procedure on sympathetic arousal: A Pilot study. *American Journal of Occupational Therapy, 61*, 406-413.

Comment: (Emphasis on "TOUCH"/deep pressure strategies). This study investigated changes in salivary cortisol (stress hormone) following administration of the Wilbarger protocol to children diagnosed with sensory defensiveness.

Leveille, G., McMahon, K., Alcatara, E., & Zibell, S. (2008). Benefits of chewing gum: Oral health and beyond. *Nutrition Today, 43*(March/April), 75-81.

Comment: (Emphasis on "MOUTH" strategies) Conclusions suggest that chewing gum may have a positive impact on cognitive function, specifically concentration and focus and weight management.

Pellegrini, A.D., Davis, P. (1995). The effects of recess timing on children's playground and classroom behaviors. *American Educational Research Journal*, 32, 845-864.

Comment: (Emphasis on "MOVE" strategies) Results indicate that students are less attentive and work less efficiently when confined to classrooms in continuous instruction time. Findings support importance of recess (movement) for student attentiveness in the classroom.

Peck, H.L., Kehle, T.J., Bray, M.A., & Theodore, L.A. (2005). Yoga as an intervention for children with attention problems. *School Psychology Review*, 34(3), 415-424.

Comment: (Emphasis on GENERAL strategies). This study explored the effectiveness of yoga for improving time on task with 10 elementary school children with attentional problems. Activities implemented included physical postures, deep breathing and relaxation exercises. Results contribute to the existing literature on yoga's role in improving children's attention in school and suggest that yoga may become a promising alternative or complement to existing interventions for attentional difficulties.

Pfeiffer, B., Henry, A., Miller, S. & Witherell, S. (2008). The effectiveness of Disc 'O' Sit cushions on attention to task in second-grade students with attention difficulties. *American Journal of Occupational Therapy*, 62, 274-281.

Comment: (Emphasis on "MOVE" strategies) This randomized controlled trial design study investigated the effectiveness of a dynamic seating system for improving attention to task in 63 second grade students. The results provide preliminary evidence for the use of the Disc 'O' Sit cushion as an occupational therapy intervention to improve attention in the school setting.

Pfeiffer, B. & Kinnealey, M. (2003). Treatment of sensory defensiveness in adults. *Occupational Therapy International*, 10(3), 175-184.

Comment: (Emphasis on deep pressure "TOUCH & MOVE" strategies). This quasi-experimental pilot study demonstrates the effectiveness a self-treating lifestyle, including activities either daily or several times a week that provide proprioceptive, vestibular and/or tactile stimulation, on 15 adults who self-identified as having sensory defensiveness in one or more sensory systems. Results of the study provide significant support for the relationship between anxiety, attentional difficulties and sensory defensiveness in adults with no psychiatric diagnoses.

Rappoport, M.D., Bolden, J., Kofler, M.J., Sarver, D.E., Raiker, J.S., Alderson, R.M. (2009). Hyperactivity in boys with attention-deficit/hyperactivity disorder (ADHD): A ubiquitous core symptom or manifestation of working memory deficits? *Journal of Abnormal Child Psychology*, 37, 521-534.

Comment: (Emphasis on "MOVE" strategies). Study investigates whether children's activity level is functionally related to working memory demands associated with executive functioning. Results support the use of movement to improve working memory and attention and suggest that behavioral programs to reduce movement may indeed be counterproductive to improving classroom performance.

Scheerer, C.R. (1992). Perspectives on an oral motor activity: The use of rubber tubing as a "chewy." *American Journal of Occupational Therapy*, 46(4), 344-352.

Comment: (Emphasis on "MOUTH" strategies). Three case studies are presented that demonstrate the therapeutic benefits of a "chewy" (rubber tubing). Use of chewy seemed to have a calming, organizing, and focusing effect on the child. The included literature review provides supporting benefits of oral motor input to support attention and learning.

Schilling, D.L., Washington, K., Billingsley, F.F., & Deitz, J. (2003). Classroom seating for children with attention deficit hyperactivity disorder: Therapy balls versus chairs. *The American Journal of Occupational Therapy, 57*(5), 534-541.

Comment: (Emphasis on "MOVE" strategies). Study investigates the effects of therapy balls as classroom seating on a students in-seat behavior and legible word productivity. Results found that use of the therapy ball had potential to meet individual movement needs to help children achieve optimal state of arousal for attending and learning.

Schilling, D.L. & Schwartz, H.S. (2004). Alternative seating for children with autism spectrum disorder: Effects on classroom behavior. *Journal of Autism and Developmental Disorders, 34*, 423-431.

Comments: (Emphasis on "MOVE" strategies). A single-study withdrawal design was used to measure the effects of using therapy balls as seating on engagement and in-seat behavior of 4 children with Autism Spectrum Disorder (ASD). Findings indicated substantial improvement in both in-seat behavior and engagement across all four participants. Additionally, teachers and students reported a preference for therapy balls, versus other seating options.

Silva, L.M.T., Schalock, M., Ayres, R., Bunse, C., & Budden S. (2009). Qigong massage treatment for sensory and self-regulation problems in young children with autism: A randomized controlled trial. *American Journal of occupational Therapy, 63*, 423-432.

Comment: (Emphasis on "TOUCH" strategies). Article presents the results of a randomized controlled study evaluating the effect of Qigong massage directed toward improving sensory integrative dysfunction in children with autism. Of significance, the use of massage intervention resulted in improved ability of the child to socially orient and to remain calm while making the many transitions required by family and preschool life. Results are encouraging in support of massage as an easily administered strategy for treating sensory and self-regulation problems in children with autism.

Smith, A.L., Hoza, B., Linnea, K., McQuade, J.D., Tomb, M., Vaughn, A.J., et al. (2011, August 25). Pilot physical activity intervention reduces severity of ADHD symptoms in young children. *Journal of Attention Disorders*. Retrieved November 28, 2011 from <http://jad.sagepub.com/content/early/2011/08/25/1087054711417395>

Comment: (Emphasis on "MOVE" strategies). This pilot study examined the effects of a before-school physical activity (movement) on behaviors of 17 children (grades K-3) diagnosed with ADHD. Pilot results suggest that sustained involvement in physical activity benefits motor, cognitive, social and behavioral functioning in young peoples exhibiting ADHD symptoms. Parents, teachers and program staff reported overall improvement with most participants (64%-71%). Article's review of literature documents studies that support the use of physical activity on neurological functioning.

Stratton, J., & Gailfus, D. (1998). A new approach to substance abuse treatment. Adolescents and adults with ADHD. *Journal of Substance Abuse Treatment, 15*(2), 89-94.

Comment: (Emphasis on "General Strategies") This author present issues of arousal often seen in adolescents and adults with substance abuse issues. Sensory-motor intervention strategies focusing on self-regulation/arousal result in patients feeling a sense of increased independence and responsibility for themselves. Following treatment, staff report that patients demonstrate improvement in anger control, reduced impulsivity, marked relaxation and reduced hyper-arousal and increased attention span during group activities. All patients who followed their sensory-motor intervention plans were able to successfully complete the chemical dependency treatment where previous behavioral issues prevented such.

Tucha, D., Mecklinger, L., Maier, K., Hammerl, M., Lange, KW. (2004). Chewing gum selectively improves memory in healthy volunteers." *Appetite*, 38 (3), 235-236.

Comment: (Emphasis on "MOUTH" strategies). A 58-person study found a significant positive effect of chewing gum on sustained attention, but not on improvement on participants' memory function.

VandenBerg, N.L. (2001). The use of a weighted vest to increase on-task behavior in children with attention difficulties. *American Journal of Occupational Therapy*, 55, 621-628.

Comment: (Emphasis on "MOVE" strategies). This study investigates the use of weighted vests on students' on-task classroom behavior. Results support the use of deep pressure via a weighted vest to increase on-task behavior for children with attentional difficulties.

White, B.P. & Mulligan, S.E. (2009). Application of psychobiological measures in occupational science and occupational therapy research. *Occupational Therapy Journal of Research*, 29: 4, 163-174.

Comment: (Emphasis on "General" ---research strategies). This study provides an overview of physiological measures or biomarkers that are beginning to be used by occupational therapy researchers in measuring the complexity and effects of stress, self-regulation and arousal systems on occupational performance. This article provides valuable information to support practitioners in understanding the occupational relevance of these physiological measures and thereby enhancing the ability to share this emerging body of research-based evidence with an interdisciplinary audience.

Wilkinson, L., Scholey, A., Wesnes, K. (2002). Chewing gum selectively improves aspects of memory in healthy volunteers. *Appetite*, 38, 235-236.

Comment: (Emphasis on "MOUTH" strategies). A 75-person study showed that chewing gum appeared to improve people's ability to learn, retain and retrieve information.

Wilmes, B., Harrington, L., Kohler-Evans, P., & Sumpter, D. (2008). Coming to our senses: Incorporating brain research findings into classroom education. *The Education Digest*, 128, 659-666.

Comment: (Emphasis on "LOOK", "LISTEN" and olfaction strategies). This is an educator focused article on sensory-filled strategies based on brain research. Classroom strategies for teachers is provided with research summaries (no citations or references provided).

B. Professional Newsletter/Magazines

DeCleene, K. E. & Hayden-Sewall, A. A. (2007, December). Sound Therapy: How did it evolve and what is occupational therapy's role? *School System Special Interest Section Quarterly*, 14(4), 2.

Comment: (Emphasis on "LISTEN" strategies). Historical descriptions and summaries of sound therapy methods. It mentions self-regulation as a positive outcome of Therapeutic Listening™.

Harper, J., Warner, A.L. (2010, January 4). Researching combined interventions: Effectively addressing attention and auditory processing in school-age children. *Advance OT Magazine*, pp. 27-28.

Comment: (Emphasis on "LISTEN" strategies). Preliminary electrophysiological findings of this study show a combination of sensorimotor therapy and sound intervention to be effective in treating children with auditory processing disorder and attention disorders.

Hoffman, S. (2011, January 31). Benefits of weighted products for managing sensory processing disorder. *Advance OT Magazine*, pp. 10-11.

Comment: (Emphasis on deep/pressure "MOVE" strategies). A COTA describes her experience using deep pressure from weighted products to benefit individuals with autism or a sensory processing disorder. The article provides case stories demonstrating effectiveness as well as providing protocols for implementation, precautions and contra-indications.

Schriber Orloff, S.N. (2010, December 6). Doodling: A boost to the brain. *Advance OT Magazine*, p. 9.

Comment: This author is a teacher who later became an O.T. She addresses the importance of doodling in the support of attention. The article cites research supportive of doodling to increase attention in the classroom and helping children learn.

Spinabella, K. (2011, August 1). Stand up for good health. *Advance OT Magazine*, p. 14.

Comment: (Emphasis on "MOVE" strategies) Use of the standing desk in both regular education and special education is discussed. Multiple benefits include: 1) improved attention, focus and task completion; 2) comfort and ergonomically correct positioning; 3) calorie consumption and general promotion of health. Multiple studies are cited supporting benefits.

C. Books/Manuscripts/Professional Texts

Trott, M.C. (2002). Oh behave! Sensory processing and behavioral strategies. Philadelphia: Therapy Skill Builders.

Comments: This publication reflects an extremely practical blend of behavioral and sensory approaches to address day-to-day functioning, including self-regulation.

D. Unpublished Graduate Theses/Dissertations

Voytecki, K.S. (2005). *The effects of hand fidgets on the on-task behaviors of a middle school student with disabilities in an inclusive academic settings*. Unpublished doctoral dissertation, University of South Florida.

Comment: (Emphasis on "TOUCH" strategies). This single subject A-B-A-B design reports significant (40%) improvement in on-task behaviors and suggest, due to this preliminary study, that fidgets have promising implications for use with this population.

E. Popular Press

Antoniades, C.B. (2010, March). The upside of fidgeting. *Parenting school years*. pp. 126-127.

Comment: (Emphasis on "TOUCH" strategies). Author describes study by Mark Rapport, PhD related to fidgeting as a support for under-aroused brain function and working memory. Author encourages parents to talk with teachers about acceptable levels of movement to support their children's learning.

Brownlee, S. & Watson, T. (1997, January 13). The senses. *U.S. News & World Report*. 51-59.

Comment: (Emphasis on "GENERAL" sensorimotor strategies). In this popular press overview of the senses, authors discuss the importance of nurturing natural and uniquely individual sensory-motor capabilities and the effect of this nurturing on an individual's health, emotions, even intelligence. Results of research on individual sensory systems can enhance the practitioners understanding of self-regulation.

Cloud, J. (2009, April 13). Better learning through fidgeting. *Time Magazine*. 61.

Comment: (Emphasis on "TOUCH" strategies) Describes a recent study from University of Central Florida (UCF) that suggests that it is better to let children jiggle and fidget to facilitate learning. Suggests that children use movement the way adults use caffeine to stay focused.

Parker-Pope, T. (2009, February 24). The 3 R's? A fourth is crucial, too: Recess. *The New York Times*

Comment: (Emphasis on "MOVE" strategies) Discussion regarding recent research by Dr. Romina Barros suggesting that play (including recess) can influence behavior, concentration and even grades.

Soussan, T. (2009, August 2). Young and restless: Fidget toys, other distractions can help some children pay better attention in class. *Albuquerque Journal*, (Special Back to School Section) pp. 9, 12.

Comment: (Emphasis on "TOUCH" strategies). Interviews with Albuquerque area therapists about using fidget toys to support attention.

Veenendall, J. (2008). *Arnie and his school tools: Simple sensory solutions that build success*. Shawnee Mission, KS: Autism Asperger Publishing Company.

Comment: (Emphasis on "GENERAL" sensorimotor strategies). A children's storybook about Arnie and strategies he uses to help him focus and attend.

SECTION III:**Select Articles on the Theory of Sensory Integration**

American Occupational Therapy Association (n.d.). *AOTA critically appraised topics and papers series: What is the neurophysiologic evidence that using a sensory-based approach in occupational therapy with children and adolescents will be effective?* Retrieved October 2, 2010, from <http://www.aota.org/Educate/Research/CATsandCAPs/SI.aspx>

Comment: As part of AOTA's Evidence-Based Literature Review Project, this Critically Analyzed Topic (CAT) provides a synthesis of a group of related articles. This particular CAT focuses on neurophysiologic evidence on the effectiveness of using a sensory-based approach in OT with children and adolescents. The studies analyzed provide "direct and robust support of neuroplasticity in many brain regions and that sensory input is an important mediator for this plasticity. Ayres's (1972) original premise that sensory motor activity provides a foundation of learning is supported.

American Occupational Therapy Association (n.d.). *AOTA critically appraised topics and papers series: What is the evidence for the existence of different types of sensory processing/sensory integration problems in children and adolescents?* Retrieved October 2, 2010, from <http://www.aota.org/Educate/Research/CATsandCAPs/SI.aspx>

Comment: As part of AOTA's Evidence-Based Literature Review Project, this Critically Analyzed Topic (CAT) provides a synthesis of a group of related articles. This particular CAT focuses on the evidence of different types of sensory processing/sensory integration problems in children and adolescents. Articles included in this synthesis were divided by type of disability: autism/Asperger's disorder; attention-deficit/hyperactivity disorder; developmental coordination disorder; learning disorders; and other disorders (such as Fragile X Syndrome). Few studies have directly tested whether children and adolescents with sensory integration dysfunction/sensory processing disorders can be classified into subtypes. However, the research provides some support to suggest that subtypes exist and treatment strategies may need to vary depending upon the type. Research also highlights the importance of a *complete* assessment of sensory processing abilities due to variations of abilities with different diagnoses.

Franklin, Laureen, Deitz, Jean, Jirikowic, Tracy, Astley, Susan (2008). Children with Fetal Alcohol Spectrum Disorders: Problem Behaviors and Sensory Processing. *The American Journal of Occupational Therapy* 62, 265-273

Comment: Results provide evidence that children with FASD demonstrate problem behaviors and sensory-processing impairments as reported by parents and that sensory-processing deficits co-occur with problem behaviors at a high rate in this population. This finding suggests that deficits in sensory processing may affect the ability of children with FASD to respond adaptively to their environments.

Koomar, J. A., (2009, December). Trauma-and attachment-informed sensory integration assessment and intervention. *Sensory Integration Special Interest Section Quarterly*, 32(4), 2.

Comment: Highlights the importance of identifying and differentiating the root causes of over-arousal and shutdown.

Kinnealey, M., Koenig, K.P., & Elchelberger Huecker, G. (1999). Changes in special needs children following intensive short-term intervention. *The Journal of Developmental and Learning Disabilities*. 3, 85-103.

Comment: This study explored changes in neuro-motor functioning, behaviors, and sensory modulation of children with special needs following a week-long camp program (intensive model) focused on improving sensory integrative functioning. The program was effective in reducing soft-neurological signs, extremes of behaviors and behaviors associated with ADD.

May-Benson, T.A. & Koomar, J.A. (2010) Systematic review of the research evidence examining the effectiveness of interventions using a sensory integrative approach for children. *American Journal of Occupational Therapy*, 64, 403-414.

Comment: This article provides a systematic review and analysis of 27 studies related to the effectiveness of sensory integration (SI) intervention on the ability of children to engage in daily occupations and to apply these findings to occupational therapy practice. Results of the review suggest that the SI approach may result in positive outcomes in multiple areas identified.

Miller, L.J., Coll, J.R., & Schoen, S.A. (2007). A randomized controlled pilot study of the effectiveness of occupational therapy for children with sensory modulation disorder. *American Journal of Occupational Therapy*, 61, 228-238.

Comment: The study evaluated the effectiveness of three treatment groups of children with sensory modulation disorders. Findings suggest that OT-SI may be effective in treating children with sensory modulation disorders. The article addresses the complex conceptual and methodological issues related to researching this area of practice.

Wilbarger, J., Stackhouse, T.M. Sensory modulation: A review of the literature. Retrieved July 5, 2007 from www.OT-Innovations.com/content/view/29/58/

Comment: A 2007 brief literature review of the concept of sensory modulation within the field of occupational therapy. Provides contributions of occupational therapy professionals in operationalizing the concept of sensory modulation.

SECTION IV

Websites that Provide Additional Support and References

www.CanChild.ca

Comment: The McMaster University Centre for childhood Disability Research has an entire section on Sensory Integration with extensive references.

www.OT-Innovations.com

Comment: Tina Champagne's website has a large amount of research and resources, including how to set up a sensory room, sensory diet handouts, and other valuable information.

www.SPDFoundation.net

Comment: Sensory Processing Foundation provides research, education and advocacy around issues related to sensory processing disorder. The on-line "library" allows access to relevant published literature.

www.TheSpiralFoundation.org

Comment: The Spiral Foundation of OTA Watertown is dedicated to helping children with sensory integration dysfunction lead full and productive lives. Their research section provides research related to the sensory processing.