

Sensory Assessment

Overview of Instruments

Although the diagnostic criteria for autism currently do not include deficits or differences in sensory processing, emerging research suggests that sensory processing disabilities are prevalent in children with autism (Baranek, 2002; Hilton, Garver, & LaVesser, 2007; Kern et al., 2008; Kern, Garver, Carmody, et al., 2007; Myles et al., 2004). Not all of the sensory processing or sensory integration measures reviewed in this summary have been standardized for children with AU. The Sensory Profile series as well as the Sensory Processing Measure (SPM) are both caregiver questionnaires that inquire about the child’s sensory processing and behaviors across various childhood environments including home, school, and the community. Both measures have been piloted on children with AU. Other assessments such as the Sensory Integration and Praxis Test (SIPT) and the DeGangi Berk Test of Sensory Integration are observation-based standardized tests, which involve the child performing specified tasks. Although the SIPT and DeGangi-Berk Test of Sensory Integration were not piloted specifically with children with autism, they may be useful for evaluating sensory processing skills in children who are capable of understanding instruction.

The following summary of sensory processing assessments is not intended to be all-inclusive. Rather, the assessments were selected based on their prevalence within clinical and academic settings as well as their relevance to children with autism.

THE ADOLESCENT/ADULT SENSORY PROFILE

The Adolescent/Adult Sensory Profile (Brown & Dunn, 2002) is a standardized assessment that measures sensory processing among adolescents and adults, ages 11 years and above. It elicits information about the adolescent’s or adult’s responsivity to various sensory stimuli and identifies processing deficits in the sensory systems that may inhibit the individual from participating in daily activities.

The profile is a judgment-based self-questionnaire consisting of 60 items rated for frequency of the behavior at home or in the community. Items use a 5-point Likert scale and inquire about Taste/Smell Processing, Movement Processing, Visual Processing, Touch Processing, Activity Level, and Auditory Processing. As with the other Sensory Profile assessments, it is to be scored by an occupational therapist or professional trained in sensory processing theory. Items are factored into four sections based on Dunn's Model of Sensory Processing: Low Registration, Sensation Seeking, Sensory Sensitivity, and Sensation Avoiding. Scores that fall within one standard deviation of the mean for each category represent "Typical Performance." Scores that fall between one to two standard deviations below the mean fall into the "Probable Difference" category. Finally, scores that fall more than two scores below the mean indicate a "Definite Difference." Scores that fall in the probable or definite difference categories may warrant intervention. The scores are placed on a grid that visually represents how the adolescent's or adult's sensory processing is compared to that of typical adolescents or adults ranging from "Much Less Than Most People" to "Much More Than Most People." The Adolescent/Adult form is a unique sensory measure in that it is a self-questionnaire.

THE DEGANGI BERK TEST OF SENSORY INTEGRATION

The DeGangi Berk Test of Sensory Integration (DeGangi & Berk, 1983) is a criterion-referenced assessment of sensory integrative functions of children ages 3 years to 5 years who demonstrate delays in sensory, motor, and perceptual skills, or who are suspected of having learning problems. It consists of three domains: Postural Control, Bilateral Motor Integration, and Reflex Integration. The test is clinician administered and takes approximately 30 minutes. The DeGangi Berk Test of Sensory Integration is designed to be a diagnostic tool if administered by an occupational therapist or physical therapist who is knowledgeable about sensory integration. If administered by special educators, motor developmental specialists, or therapy assistants, the test may be used as a screening tool to determine if a child is appropriate for a more thorough sensory evaluation.

Children are asked to perform the desired task and are rated on a weighted numerical point system ranging from 0-1 to 0-4 depending on the degree of difficulty for the item. One of the major advantages of the DeGangi Berk Test of Sensory Integration is that it allows the examiner to observe and rate the child's performance on crossing midline, maintaining various postural positions, producing co-contraction of opposing muscle groups, and motor planning for various tasks. The test was piloted on 38 children with developmental delay, but not specifically on children diagnosed with AU. The Reflex Integration domain was found to have less than desired rigor for validity and reliability and, therefore, should be used cautiously from a diagnostic standpoint. Another possible drawback of the DeGangi Berk Test of Sensory Integration is that the child must be able to demonstrate sustained attention to perform test items and also be able to interpret verbal instructions. Therefore, it may only be useful for children with autism who have good attention and receptive language skills.

THE INFANT TODDLER SENSORY PROFILE

The Infant Toddler Sensory Profile (Dunn, 2002) measures sensory processing among infants and toddlers ages birth to 3 years. It is designed to highlight sensory processing strengths and barriers in relation to daily childhood occupations. The birth to 6 months form consists of 36 items related to general, auditory, visual, tactile, and vestibular processing. The 7- to 36-month form contains 48 items with the above categories plus oral sensory processing. The primary caregiver rates each item on a 5-point scale for the frequency of the behavior in the home or community environment. The infant toddler sensory profile is scored by an occupational therapist or trained professional in the area of sensory processing.

Scores are produced for sensory system responses and quadrants (sensory seeking, low registration, sensory sensitivity and sensory avoiding). Because many children with disabilities have been found to have higher levels of sensory sensitivity or sensory avoiding behaviors, the category "low threshold" was created as a combination of both of these areas. Cut scores for the birth to 6-month form indicate either "typical performance" (within one standard deviation of the mean) or consult and follow-up (scores more than one standard deviation from the mean). Scores for the 7- to 36-month form fall into three categories: typical performance,

probable difference, or definite difference depending on their distance from the mean. The Infant Toddler Sensory Profile is a helpful tool for assessing everyday sensory processing and may reflect a truer picture of the child versus an observation measure performed at one particular moment in time. Like the Sensory Profile, it is recommended that the caregiver consult the occupational therapist or trained examiner for clarification if questions arise when completing the Infant Toddler Sensory Profile.

THE SENSORY INTEGRATION AND PRAXIS TESTS (SIPT)

The Sensory Integration and Praxis Tests (SIPT; Ayres, 1989) is a clinician-administered, norm-referenced series of tests designed to evaluate children ages 4 years to 8 years 11 months on sensory integration and praxis. The SIPT is a standardized group of 17 tests developed to test various aspects of praxis, perception of visual, tactile, and kinesthetic input, and the behavioral manifestations of deficits in the integration of sensation. The entire battery requires approximately two hours to administer. Individual tests can be individually administered in 10 minutes. Additional time is required to prepare the paperwork for computerized scoring by Western Psychological Services.

To use this test, therapists must have extensive training in sensory integration theory, administration and interpretation, and be certified to administer the test by Western Psychological Services or Sensory Integration International. Children who have significant behavioral issues may not be appropriate for this test. Likewise, children with difficulty following verbal directions and/or learning from demonstration of trial items may not be appropriate for testing with the SIPT. The SIPT provide extensive information about sensory processing and praxis, but the full battery of tests is extremely expensive to administer and time consuming to score and interpret.

THE SENSORY INTEGRATION INVENTORY-REVISED (SII-R)

The Sensory Integration Inventory-Revised (SII-R; Reisman & Hanschu, 1992) is a non-standardized checklist that can be used to screen and rule out serious maladaptive behaviors

that are not due to sensory dysfunction. The SII-R can be completed in less than 30 minutes by a therapist who knows the client well. Alternatively, it can be used to interview a client's teacher or parent. Items are separated into four categories (tactile, vestibular, proprioceptive, general reactions) and are answered by checking "yes," "no," or "unsure" based on the typical response of the client. It is not standardized; therefore, the therapist must look for patterns of response that may indicate dysfunction in sensory integration. The authors report that the SII-R screens out individuals who have serious behaviors for reasons other than sensory integration dysfunction.

The SII-R was originally developed with a group of adults with cognitive disabilities, but therapists have found it to be useful with a variety of clients who cannot fully cooperate in a testing situation – from children with AU to adults with schizophrenia or Alzheimer's. One of the major advantages of the SII-R is the cluster of self-stimulatory items listed for each of the sensory areas. Since children with AU have been reported to exhibit increased sensory stimulation behaviors, the SII-R can be helpful due to its ability to illustrate that self-stimulatory behaviors may be sensory based. If numerous self-stimulatory behaviors are found within one sensory system versus another, the probable cause for the self-stimulation is sensory related.

THE SENSORY PROCESSING MEASURE (SPM)

The Sensory Processing Measure (SPM; Glennon, Miller-Kuhaneck, Henry, Parham, & Ecker, 2007) measures sensory integrative dysfunction in children in kindergarten to sixth grade. It is a norm-referenced assessment that produces standard scores for praxis, social participation, and five sensory systems (visual, auditory, tactile, proprioceptive and vestibular function). Three forms comprise the SPM: the Home Form, Main Classroom Form, and School Environments Form. The Home Form contains 75 items and is completed by the child's parent or primary caregiver at home. The Main Classroom Form is comprised of 62 items and is to be completed by the child's primary teacher. The School Environments Form contains 10 to 15 items for each of the six school environments (art class, music class, physical education class,

recess/playground, cafeteria, and school bus). This form may be completed by school personnel who are familiar with the child in the context of the environment being assessed.

The Home and Main Classroom Forms yield eight different standard scores: Social Participation, Vision, Hearing, Touch, Body Awareness (Proprioception), Balance and Motion (Vestibular Function), Planning and Ideas (Praxis), and Total Sensory Systems. Scores from each scale fall into three categories (Typical, Some Problems, or Definite Dysfunction). An environmental difference score allows the examiner to compare a child's sensory processing abilities at home and at school. The School Environments Form is a criterion-based measure. For each of the six environments, individual rating sheets of 10 to 15 items can be completed by the music teacher, school bus driver, etc., within 5 minutes. The forms may be downloaded from a CD that comes with the SPM kit and given to different raters as needed. Each environment has a cutoff score, and if the child's score for a given environment falls at the cutoff level or above, the child is exhibiting a high level of sensory processing problems for that environment. The School Environments Form is designed to elicit information for a collaborative, team approach so as to educate the individual working with the child in selective environments about sensory processing. The School Environments Form must be used in conjunction with the Main Classroom Form.

THE SENSORY PROFILE

The Sensory Profile (Dunn, 1999) is a norm-referenced, standardized assessment designed to measure the sensory processing of children ages 3 to 10. It elicits information about the child's responsivity to various sensory stimuli and identifies processing deficits in the sensory systems that may inhibit the child from participating in daily activities. The Sensory Profile is a judgment-based questionnaire that is to be completed by the primary caregiver. Caregivers rate 125 items on a 1- to 5-point Likert scale in terms of frequency of behavior occurrence. The Sensory Profile is designed to be scored by an occupational therapist or a professional trained in sensory processing theory. Items are factored into three sections: Sensory Processing, Sensory Modulation, and Behavioral and Emotional Responses. The Sensory System grid

illustrates the child's sensory processing for each sensory system, including: auditory, visual, vestibular, tactile, multisensory, and oral sensory areas. Scores are also grouped into meaningful factors that represent overall sensory processing responses, Sensory Seeking, Emotionally Reactive, Low Endurance/Tone, Oral Sensory Sensitivity, Inattention/ Distractibility, Poor Registration, Sensory Sensitivity, Sedentary and Fine Motor/ Perceptual. Scores that fall within one standard deviation of the mean for each category represent "Typical Performance." Scores that fall between one to two standard deviations below the mean fall into the "Probable Difference" category. Finally, scores that fall more than two scores below the mean illustrate a "Definite Difference." Scores that fall in the probable or definite difference categories may warrant intervention.

The Sensory Profile was piloted with children with AU and found to be a valid measure to differentiate atypical sensory processing within this population. It takes approximately 20-30 minutes for the caregiver to complete and 30 minutes for the examiner to score. In 2006, Dunn published the Sensory Profile Supplement, which provides a more current scoring system that contains expanded cut scores and is easier to interpret. Additionally, it provides reproducible handouts containing suggestions for intervention based on each of the four sensory quadrants.

The information obtained from the Sensory Profile is very useful for determining what sensory systems the child may be having difficulty processing as well as overall information on how the child is interpreting sensory information, adapting to sensory stimuli in the environment and reacting to or participating in daily activities. According to Dunn's theory of Sensory Processing, some of these sensory traits are static and not expected to vary significantly over time. Thus, using the Sensory Profile to measure outcomes following sensory integration intervention may be problematic. Another possible drawback of the Sensory Profile is that it is a parent-based questionnaire, which may be biased depending on the parent's perception of his or her child's behavior. Additionally, some of the questions can be confusing for parents, so it is recommended that the parent be able to consult the occupational therapist for clarification as he or she completes the assessment.

THE SENSORY PROFILE-SCHOOL COMPANION

The Sensory Profile-School Companion (Dunn, 2006) is the school-based version of the Sensory Profile. The assessment is a judgment-based questionnaire that is to be completed by the child's teacher to assess how sensory processing affects the child's behavior in the classroom and school environments. The Sensory Profile-School Companion is a criterion-referenced assessment designed to evaluate sensory processing skills in children ages 3 years to 11 years 11 months. Similar to the other Sensory Profile measures, the Sensory Profile-School Companion asks the teacher to rate 62 items on the frequency in which the behavior is exhibited based on a 1- to 5-point Likert scale. The Sensory Profile-School Companion contains five subtests that fall within three domains. The first domain, Environmental Sensations, inquires about responses to both auditory and visual sensation. The second domain, Body Sensations, investigates movement and touch. The third domain, Classroom Behaviors, evaluates behaviors within the classroom and school environments.

Scores are transferred from the Teacher Questionnaire to the Scoring Summary Sheet. Three types of scores are produced. The first grid calculates the child's sensory quadrant scores. These four sensory quadrants (Registration, Seeking, Sensitivity, and Avoiding) are measured using cut scores based on normative scores. Children's performance is rated as "Similar to Others," indicating performance within one standard deviation above or below the mean, "Much Less Than Others-Definite Difference," indicating scores less than two standard deviations below the mean, "Less Than Others-Probable Difference," representing scores between one and two standard deviations below the mean, "More Than Others-Probable Difference," indicating scores between one to two standard deviations above the mean, and "Much More Than Others-Definite Difference," indicating scores above two standard deviations above the mean. The second type of score produced is the School Factor Scores.

Factor 1 evaluates the student's need for external support and encompasses sensory seeking and registration patterns. Factor 2 assesses awareness and attention within the learning environment and includes sensory seeking and sensitivity patterns. Factor 3 measures the

student's range of tolerance for sensory input and is influenced by avoiding and sensitivity patterns. Factor 4 evaluates the student's availability for learning and is comprised of avoiding and registration patterns. Each factor is described in the manual along with corresponding intervention strategies. The third type of score produced is the section scores, which evaluate performance on the five subtest areas (auditory, visual, movement, touch, and behavior).

The School Companion can be administered in 15 minutes and can be scored by a trained therapist in 15 minutes. The Sensory Profile Select Scoring Assistant is a software program designed to reduce scoring time and produce an interpretive summary sheet explaining the child's results. The Sensory Profile-School Companion was piloted on a large sample of children with and without disabilities, including children with AU. Significant differences were found for all summary categories for children with Asperger Syndrome and autism compared to typically developing children in the pilot study.

THE SHORT SENSORY PROFILE

The Short Sensory Profile (Dunn, 1999) is a standardized, abbreviated version of the Sensory Profile designed so that clinicians can quickly identify if a child is experiencing sensory modulation difficulties. It is a 38-item, judgment-based questionnaire using a 5-point Likert scale that the primary caregiver completes. The items are grouped into seven categories: Tactile Sensitivity, Taste/Smell Sensitivity, Movement Sensitivity, Underresponsive/Seeks Sensation, Auditory Filtering, Low Energy/Weak, and Visual/Auditory Sensitivity. All categories relate to sensory modulation and reflect how the child's nervous system regulates the sensory information it receives.

An occupational therapist or professional trained in sensory processing scores the sensory profile. Scores that fall within one standard deviation of the mean for each category represent "Typical Performance," one to two standard deviations below the mean, "Probable Difference," and scores below two standard deviations below the mean, "Definite Difference." Scores that result in a probable or definite difference indicate that further assessment and possible therapeutic intervention may be warranted. The Short Sensory Profile was piloted among

children with AU and found to be a useful screening tool for assessing sensory modulation difficulties. Because the Short Sensory Profile can be completed by the caregiver in 10 minutes and scored by the examiner in 10 minutes, it is widely used in clinics and school-based settings.

Summary of Sensory Assessment Instruments

Name of Tool and Author	Age Range (in years)	Method of Administration/ Format	Approximate Time to Administer	Subscale	Availability
Adolescent/ Adult Sensory Profile Dunn (2002)	11+	Criterion-referenced, judgment based self-report questionnaire of 60 items Yields scores on frequency of exhibited behaviors based on a Likert scale of 1-5, from "Almost Never" to "Almost Always." Scores are summed according to four sensory quadrants (Low Registration, Sensation Seeking, Sensory Sensitivity, and Sensation Avoiding). Scores given in relation to distance above and below the mean	15-20 min.	Taste/ Smell Sensitivity Movement Processing Visual Processing Touch Processing Activity Level Auditory Processing	Pearson http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=076-1649-700
DeGangi Berk Test of Sensory Integration DeGangi & Berk (1983)	3-5	Criterion-referenced; clinician-administered; 36 items assess postural control, bilateral coordination, and reflexes Child-performed items are numerically rated on a scale of 0-1 or 0-4 based on the difficulty of the item Yields scores that fall into Normal, At Risk, and Deficient categories	30 min.	Postural Control Bilateral Motor Integration Reflex Integration	Western Psychological Services http://portal.wpspublish.com/portal/page?_pageid=53.69337&_dad=portal&_schema=PORTAL

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Name of Tool and Author	Age Range (in years)	Method of Administration/ Format	Approximate Time to Administer	Subscale	Availability
<p>Infant Toddler Sensory Profile Dunn (2002)</p>	<p>Birth-3</p>	<p>Criterion-referenced; judgment-based questionnaire measuring infant/toddlers' reactions to sensory experiences completed by primary caregiver. Yields scores on frequency of observed behaviors rated on a Likert scale of 1-5 from "Almost Never" to "Almost Always." Scores summed into 4 quadrants (Low Registration, Sensation Seeking, Sensory Sensitivity, and Sensation Avoiding) and/or sensory systems. Scores given in relation to distance above and below the mean (Typical Performance)</p>	<p>15 min.</p>	<p>Birth to 6 mos.: General Processing Auditory Processing Visual Processing Tactile Processing Vestibular Processing 7 to 36 mos.: General Processing Auditory Processing Visual Processing Tactile Processing Vestibular Processing Oral Sensory Processing</p>	<p>Pearson http://www.pearsonassessments.com/HAIWWEB/Cultures/en-us/Productdetail.htm?Pid=076-1649-549</p>

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Name of Tool and Author	Age Range (in years)	Method of Administration/ Format	Approximate Time to Administer	Subscale	Availability
Sensory Integration and Praxis Tests (SIPT) Ayres (1989)**	4-9	Norm-referenced; clinician-administered; series of 17 tests designed to measure sensory integrative and praxis skills including visual, motor, tactile, and kinesthetic tasks Requires specialized training in sensory integration theory and administration of the SIPT. May be administered as a full battery or as individual subtests Score sheets are submitted to WPS and returned to examiner with results	Approximately 2 hrs. To administer all 17 tests. Additional time is needed for set-up and scoring	Space Visualization Figure Ground Perception Standing Walking Balance Design Copying Postural Praxis Bilateral Motor Coordination Praxis on Verbal Command Constructional Praxis Post-Rotary Nystagmus Motor Accuracy Sequencing Praxis Oral Praxis Manual Form Perception Kinesthesia Finger Identification Graphesthesia Localization of Tactile Stimuli	Western Psychological Services http://portal.wpspublish.com/portal/page?_pageid=53.114668&_dad=portal&_schema=PORTAL
Sensory Integration Inventory-Revised (SII-R) Reisman & Hanschu (1992)	Children and adults	Non-standardized checklist. Completed by occupational therapist or by interview of teacher or parent; each section has items related to self-stimulatory behaviors Useful tool for clients who cannot participate in standardized testing such as (AU, schizophrenia and Alzheimer's disease) Examiner checks "yes," "no," or "unsure" to reflect how the client typically responds to an event. Value depends on interpretive skill of therapist	30 min.	Tactile Vestibular Proprioceptive General Reactions	Therapro, Inc. http://www.therapro.com/Sensory-Integration-Inventory-Revised-for-Individuals-with-Developmental-Disabilities-P7658.aspx

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Name of Tool and Author	Age Range (in years)	Method of Administration/ Format	Approximate Time to Administer	Subscale	Availability
<p>Sensory Processing Measure (SPM) Glennon, Miller-Kuhaneck, Henry, Parham, & Ecker (2007)</p>	<p>5-11</p>	<p>Norm-referenced, judgment-based questionnaires completed by primary caregiver, main teacher, and school personnel familiar with child. Three forms: Home Form, Main Classroom Form, and School Environments Form (art class, music class, physical education class, recess/playground, cafeteria, and school bus) Four-point Likert scale. Home and Main Classroom Forms yield standard scores (social participation, vision, hearing, touch, body awareness, balance and motion, planning and ideas, total sensory systems). Environmental difference score shows the difference in sensory processing across environments</p>	<p>15- 20 min. for Home and Main Classroom Forms, 5 min. for each of School Environments Form</p>	<p>Higher-level integrative functions: Praxis Social participation Sensory systems: Visual Auditory Tactile Proprioceptive Vestibular</p>	<p style="text-align: center;">Western Psychological Services http://portal.wopublish.com/portal/page?_pageid=53.122938&_dad=portal&_schema=PORTAL</p>

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Name of Tool and Author	Age Range (in years)	Method of Administration/ Format	Approximate Time to Administer	Subscale	Availability
Sensory Profile Dunn (1999)	3-10	<p>Criterion-referenced, judgment-based questionnaire of 125 items completed by a primary caregiver</p> <p>Standardized on children with AU</p> <p>Scores fall in range of Typical Performance, Probable Difference (1 <i>sd</i> < mean), or Definite Difference (2 <i>sd</i> < mean). Sensory Profile Supplement provides an updated scoring system with expanded cut scores for easier interpretation</p> <p>Scoring software and Spanish versions available</p> <p>Yields scores on frequency of observed behaviors rated on a Likert scale of 1-5 from "Almost Never" to "Almost Always"</p>	20-30 min.	Sensory Processing Modulation Behavior and Emotional Responses	<p>Pearson</p> <p>http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=076-1638-008</p>

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Name of Tool and Author	Age Range (in years)	Method of Administration/ Format	Approximate Time to Administer	Subscale	Availability
Sensory Profile-School Companion Dunn (2006)	3-12	<p>Criterion-referenced, judgment-based questionnaire completed by the child's primary teacher</p> <p>Yields scores on frequency of observed behaviors rated on a Likert scale of 1-5 from "Almost Never" to "Almost Always."</p> <p>Three types of scores are derived: (a) Sensory Quadrant Scores, (b) School Factor Scores, and (c) Section Scores.</p> <p>Scores given in relation to distance above and below the mean</p>	15 min. to administer, 15 min. to score	<p>Environmental Sensations:</p> <ul style="list-style-type: none"> Auditory Visual <p>Body Sensations:</p> <ul style="list-style-type: none"> Movement Touch <p>Classroom Behaviors:</p> <ul style="list-style-type: none"> Behaviors 	<p style="text-align: center;">Pearson</p> <p style="text-align: center;">http://www.pearsonassessments.com/HAIWFB/Cultures/en-us/Productdetail.htm?Pid=076-1600-205</p>
Short Sensory Profile Dunn (1999)	3-10	<p>Criterion-referenced; judgment-based questionnaire to assess sensory modulation completed by primary caregiver</p> <p>Abbreviated version of 38 items from the Sensory Profile</p> <p>Standardized on children with autism</p> <p>Yields scores on frequency of observed behaviors rated on a Likert scale of 1-5 from "Almost Never" to "Almost Always."</p> <p>Scores fall in range of Typical Performance, Probable Difference (1 <i>sd</i> < mean), or Definite Difference (2 <i>sd</i> < mean)</p>	10 min.	<p>Tactile Sensitivity</p> <p>Taste/Smell Sensitivity</p> <p>Movement Sensitivity</p> <p>Underresponsive/Seeks Sensation</p> <p>Auditory Filtering</p> <p>Low Energy/Weak</p> <p>Visual and Auditory Sensitivity</p>	<p style="text-align: center;">Pearson</p> <p style="text-align: center;">http://www.pearsonassessments.com/HAIWFB/Cultures/en-us/Productdetail.htm?Pid=076-1638-008</p>

Research on Sensory Assessment Instruments

Studies	Age Range (in years)	Sample Size	Purpose of Study	Outcome
Ermer & Dunn (1998)	3-15	38 – Autism 61-ADHD	Validity of Infant/Toddler Sensory Profile, Sensory Profile, Short Sensory Profile, Adolescent/Adult Sensory Profile	Discriminant analysis: MANCOVA – 85% of items differentiated between autism and non-autism; 90% of cases correctly identified: Disabilities vs. without disabilities – only significant discriminator: inattention/distractibility, AU/PDD vs. ADHD – discriminators: sensory seeking, oral sensory, sensitivity, fine-motor/perceptual
Kientz & Dunn (1997)	3-10	32	Validity of Infant/Toddler Sensory Profile, Sensory Profile, Short Sensory Profile, Adolescent/Adult Sensory Profile	82% of participants demonstrated some degree of sensory processing difficulty, Pearson’s Correlation analyses: SSP/DBC-P and SSP/VABS maladaptive behavior – strongly negatively associated, positive correlation between total SSP and VABS daily living skills
Watling, Deitz, & White (2001)	3-6	40	Validity of Infant/Toddler Sensory Profile, Sensory Profile, Short Sensory Profile, Adolescent/Adult Sensory Profile	Factor analysis: Scores of children with autism were significantly different from those of children without autism on 8 of 10 factors

Misconceptions

Myths	Realities
Because autism diagnostic criteria do not include motor and sensory characteristics, occupational therapists are not necessary/needed members of autism evaluations.	Motor and sensory issues are associated features of autism and impact functioning at a very basic level. Occupational therapists have unique training to allow evaluation of and treatment planning for motor and sensory issues (cf. Aspy & Grossman, 2007; Baranek, 2002; Baranek, Parham, & Bodfish, 2005; Scaaf & Miller, 2005).
If a child does not display an immediate reaction to a particular sensory stimulus while at school, the child does not have sensory processing issues that need to be addressed at school.	Reactions to sensory events can be cumulative. A child may be able to tolerate a certain level of sensory discomfort from individual events; however, once a certain threshold is met, he may have a reaction at a later time. This is important to know and may indicate a need for sensory intervention throughout the day to prevent a meltdown later in the day (Dunn, 1999; Glennon, Miller-Kuhaneck, Henry, Parham, & Ecker, 2007).

References

- Aspy, R., & Grossman, B. G. (2007). *The Ziggurat model: A framework for designing comprehensive interventions for individuals with high-functioning autism and Asperger Syndrome*. Shawnee Mission, KS: Autism Asperger Publishing Company.
- Ayres, A. J. (1989). *Sensory Integration and Praxis Test: SIPT manual*. Los Angeles: Western Psychological Services.
- Baranek, G. (2002). Efficacy of sensory and motor interventions for children with autism. *Journal of Autism and Developmental Disorders, 32*, 397-492.
- Baranek, G. T., Parham, L. D., & Bodfish, J. W. (2005). Sensory and motor features in autism: Assessment and Intervention. In F. R. Volkmar, R. Paul, A. Klin, & D. Cohen (Eds.), *Handbook of autism and pervasive developmental disorders: Vol. 2: Assessment, interventions, and policy* (3rd ed., pp. 831-857). Hoboken, NJ: John Wiley & Sons.
- Brown, C., & Dunn, W. (2002). *Adolescent/Adult Sensory Profile manual*. San Antonio, TX: Psychological Corporation.
- DeGangi, G., & Berk, R. (1983). *DeGangi Berk Test of Sensory Integration manual*. Los Angeles: Western Psychological Services.
- Dunn, W. (1999). *Sensory Profile manual*. San Antonio, TX: Psychological Corporation.

- Dunn, W. (2002). *Infant Toddler Sensory Profile manual*. San Antonio, TX: Psychological Corporation.
- Dunn, W. (2006). *Sensory Profile-School Companion manual*. San Antonio, TX: Psychological Corporation.
- Dunn, W., Myles, B. S., & Orr, S. (2002). Sensory processing issues associated with Asperger syndrome: A preliminary investigation. *American Journal of Occupational Therapy, 56*, 97-102.
- Ermer, J., & Dunn, W. (1998). The Sensory Profile: A discriminant analysis of children with and without disabilities. *American Journal of Occupational Therapy, 52*, 283-290.
- Glennon, T., Miller-Kuhaneck, H., Henry, D. A., Parham, L. D., & Ecker, C. (2007). *Sensory Processing Measure manual*. Los Angeles: Western Psychological Services.
- Hilton, C., Garver, K., & LaVesser, P. (2007). Relationship between social competence and sensory processing in children with high functioning autism spectrum disorders. *Research in Autism Spectrum Disorders, 1*, 164-173.
- Kern, J. K., Garver, C. R., Carmody, T., Andrews, A. A., Mehta, J. A., & Trivedi, M. H. (2008). Examining sensory modulation in individuals with autism as compared to community controls. *Research in Autism Spectrum Disorders, 2*, 85-94.
- Kern, J. K., Garver, C. R., Carmody, T., Andrews, A. A., Trivedi, M. H., & Mehta, J. A. (2007). Examining sensory quadrants in autism. *Research in Autism Spectrum Disorders, 1*, 185-193.
- Kientz, M. A., & Dunn, W. (1997). A comparison of children with and without autism on the Sensory Profile. *American Journal of Occupational Therapy, 51*, 530-537.
- Myles, B. S., Hagiwara, T., Dunn, W., Rinner, L., Reese, M., Huggins, A., & Becker, S. (2004). Sensory issues in children with Asperger Syndrome and autism. *Education and Training in Developmental Disabilities, 3*(4), 283-290.
- Pfeiffer, B., Kinnealey, M., Reed, C., & Herzberg, G. (2005). Sensory modulation and affective disorders in children and adolescents with Asperger's disorder. *American Journal of Occupational Therapy, 59*, 335-345.
- Reisman, J., & Hanschu, B. (1992). *Sensory Integration Inventory User's Guide*. Stillwater, MN: PDP Press.
- Scaaf, R. C., & Miller, L. J. (2005). Occupational therapy using a sensory integrative approach for children with developmental disabilities. *Mental Retardation and Developmental*

Disabilities Research Reviews, 11, 143-148. Retrieved July 10, 2008, from www.interscience.wiley.com

Watling, R. L., Deitz, J., & White, O. (2001). Comparison of Sensory Profile scores of young children with and without autism spectrum disorders. *American Journal of Occupational Therapy*, 55, 416-423.

Resources and Materials

Adamson, A., O'Hare, A., & Graham, C. (2006). Impairments in sensory modulation in children with autism spectrum disorder. *British Journal of Occupational Therapy*, 69, 357-364. This study did not yield any significant predictors such as child's age, diagnosis (Asperger Syndrome versus autism), gender, or underlying medical condition that were indicators of future sensory modulation problems.

Dunn, W., Myles, B. S., & Orr, S. (2002). Sensory processing issues associated with Asperger syndrome: A preliminary investigation. *American Journal of Occupational Therapy*, 56, 97-102.

This study indicated that children with AS have more difficulty with sensory processing than typically developing peers.