Home Program Guide for Parents and their Child with Sensory Defensiveness

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HOME PROGRAM GUIDE FOR
PARENTS AND THEIR CHILD WITH SENSORY DEFENSIVENESS

by

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A Scholarly Project
Submitted to the Occupational Therapy Department
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This Scholarly Project Paper, submitted by Chelsea Takuski in partial fulfillment of the requirement for the Degree of Master’s of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

Faculty Advisor

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CHAPTER I

INTRODUCTION

The highly aroused nervous system in a child with sensory defensiveness may cause him/her to perceive typically nonthreatening stimuli as potentially harmful. Everyday occupations may be stressful and frustrating for both the child and his/her parents. Along with clinical sensory integration treatment by an occupational therapist, an easy-to-use home program guide needs to be implemented by the child’s parents to receive optimal outcomes in the child’s occupational performance (Stagnitti et al, 1999).

Professional journal articles and textbook publications were reviewed for information on the definition, types, and etiology of sensory defensiveness, its relationship to the occupational therapy framework regarding areas of occupation, performance skills and patterns, and client factors, the assessment and treatment of sensory defensiveness, and the roles of the parents and occupational therapist in treatment. Based on the literature review, the information was integrated into a functional, easy-to-follow Home Program Guide for Parents and Their Child with Sensory Defensiveness. The Guide incorporates remedial and compensatory strategies into the child’s activities of daily living. Since a child’s most important occupation is play and his/her parents are concerned with spending “quality time” with their child (Thompson, 1998), various play activities are included in the Guide. In addition, home environmental modifications are listed to further promote the child’s successful participation in his/her environment. A daily sensory log is included in the Guide to
assist parents in reporting an accurate description of their child’s reaction to certain sensory stimuli to their occupational therapist.
CHAPTER II
REVIEW OF LITERATURE

Since a child with sensory defensiveness may have a highly aroused nervous system, everyday occupations may be stressful and frustrating for both the child and his/her parents. Therefore, the parents need a helpful, simple guide to use at home to assist their child in successfully completing his/her daily occupations. In order to have validity, the Home Program Guide needs to be based on current literature. This chapter is organized into the following sections: Definition of Sensory Defensiveness, Types of Sensory Defensiveness, Etiology, Relationship to the Occupational Therapy Framework, Evaluation of Sensory Defensiveness, Treatment of Sensory Defensiveness, Parent Involvement, and Roles of an Occupational Therapist. This review of literature generates a better understanding of what sensory defensiveness is and the impact this disorder has on a child’s day-to-day activities and the life of his/her family.

Definition of Sensory Defensiveness

Sensory defensiveness, a sensory modulation disorder, is characterized by hyperresponsivity in one or more sensory systems (i.e. auditory, visual, tactile, and/or vestibular). Sensory modulation refers to self regulation of the central nervous system’s activity (Parham & Mailloux, 2001). The central nervous system of a child with sensory defensiveness is highly aroused causing the child to perceive typically nonthreatening stimuli as potentially harmful; this may cause the child to avoid situations, increase his/her activity level, be emotionally instable or labile, and/or sensory seeking (Stagnitti,
Raison, & Ryan, 1999). Sensory defensiveness may be a general reaction to all types of sensory systems or a specific response to one or more sensory stimuli. Defensiveness to tactile stimulation is the most frequently observed sensory integrative disorder involving sensory modulation (Parham & Mailloux, 2001). The focus of this Home Program Guide will be on tactile defensiveness, although defensiveness to other sensory stimuli will be incorporated.

Types of Sensory Defensiveness

Children with sensory defensiveness may be negatively affected by one or more types of stimuli causing them to overreact to touch, movement, sound, odors, and tastes. Tactile defensiveness may lead to a child avoiding touch from others and/or having a negative reaction to particular textiles. Auditory defensiveness involves a hypersensitivity to loud, sudden or certain sounds. Children with visual defensiveness may react negatively to bright or specific types of light and/or may avoid eye contact. Oral defensiveness presents with a hypersensitivity to touch, smell, and taste which may cause an adverse reaction to certain food types and textures, brushing teeth, and washing the face. Gravitational insecurity, another type of sensory defensiveness, refers to feelings of anxiety and aversion to movement and shifts in body and head position (Yack, Sutton, & Aquilla, 1998).

Etiology

Self-regulation is “the nervous system’s ability to attain, maintain, and change levels of arousal or alertness” (Yack et al., 1998, p. 18). These levels are altered to meet the demands of varying circumstances through regulation of external sensory stimuli. Normal functioning of self-regulation promotes development of skills in “attention to
task, impulse control, frustration tolerance, and balance of emotional reactions” (p. 18). Children with sensory modulation dysfunction have problems attaining and sustaining normal arousal levels (Yack et al.) due to the result of an imbalance of the neurological system (Sears, 1994). Sensory defensiveness may be present at birth or acquired from sensory deprivation or trauma (i.e. physical or sexual abuse).

The exact cause of sensory defensiveness is still under investigation (Sears, 1994). In Hotz and Royeen (1998), various theories that exist on the cause of tactile defensiveness are described by the authors. One theory proposes that an imbalance in the touch systems causes a failure of the discriminative touch system (epicritic—medial lemniscal) to limit the protective touch system (protocopathic—spinothalamic). Another theory describes the dysfunction being in the central nervous system, in association with the connection between the limbic system and emotional regulators. A third theory presents the notion that higher levels in the central nervous system fail to modulate, resulting in stimuli being insufficiently integrated at the spinal cord level.

As described previously, the theories on the etiology of sensory defensiveness, or tactile defensiveness in particular, vary greatly. However, according to Hotz & Royeen (1998), the various theorists all seem to agree upon the idea that the problem lies in the modulatory function of the central nervous system. This area needs further research in order to determine a concrete explanation of the etiology of the dysfunction; this in turn may make treatment of sensory defensiveness more effective.
Relationship to the Occupational Therapy Framework

The Occupational Therapy Practice Framework: Domain and Process (AOTA, 2002) was developed "to outline language and constructs that describe the profession’s focus" (p. 609). The document contains an explanation of the domain of occupational therapy, a description of the occupational therapy process, and numerous resources to assist in understanding the evaluation, intervention, and outcome processes of occupational therapy. The framework may be used by professionals in the field of occupational therapy to "examine their current practice and to consider new applications in emerging practice areas" (p. 609) and by external audiences to better "understand occupational therapy’s emphasis on supporting function and performance in daily life activities and the many factors that influence performance that are addressed during the intervention process" (p. 609).

Affects on Areas of Occupation

Areas of occupation are defined as "various kinds of [meaningful] life activities in which people engage" (AOTA, 2002, p. 620). These areas include activities of daily living (ADL) (i.e. bathing, dressing, eating, functional mobility, personal hygiene and grooming, sleep/rest, and toilet hygiene), instrumental activities of daily living (IADL) (i.e. care of others, community mobility, health management and maintenance, and shopping), education (i.e. formal and informal participation), work, play (i.e. exploration and participation), leisure, and social participation.

According to Kinnealey (1998), the occupational areas of social development and self-care are affected by a child’s sensory defensiveness behaviors. Sears (1994)
describes the following specific responses to activities of daily living in children with tactile defensiveness:

- Has difficulty suckling or eating solid foods
- Dislikes having ears cleaned, brushing teeth, using toothpaste
- Experiences great discomfort when nose/ears are cleaned with swabs
- Responds with alarm, withdrawal, or scratching when face is wiped with a napkin or cloth
- Dislikes skin creams and powders
- Has an aversion to haircuts and having hair washed and combed
- Avoids walking barefoot in sand, grass, and water
- Avoids crawling on a carpet
- Prefers wearing shoes to being barefoot
- Has an aversion to nail cutting
- Avoids using the palms of hands by manipulating objects with fingertips only
- Avoids using hands for prolonged periods of time
- Prefers to be covered, regardless of temperature
- Dislikes the feel of new clothing
- Dislikes the feel of certain textures such as wool and synthetics
- Reacts defensively to rough bed sheets, blankets, or nightclothes
- Reacts defensively to high-frequency sounds, specific odors, or bright lights

A child’s educational, play, and social participation may be affected by his/her defensiveness to sensory stimuli. According to Kinnealey (1998), children with sensory defensiveness, particularly tactile defensiveness, appear to have a “protection zone” which denies other children from being in close physical contact with them. Stagnitti et al. (1999) describe a kindergartener who was observed in class and at home as disliking to be touched and to be in small groups. When touched while he was included in small groups, he withdrew by curling into a ball.

**Impact on Performance Skills**

Performance skills are observable characteristics of an individual’s actions that have functional objectives. These skills include motor skills (i.e. posture, mobility, coordination, strength and effort, and energy), process skills (i.e. energy knowledge,
temporal organization, organizing space and objects, and adaptation), and communication/interaction skills (i.e. physicality, information exchange, and relations) (AOTA, 2002).

Children with both tactile defensiveness and poor tactile discrimination demonstrate deficits in fine motor tasks, specifically during in-hand manipulation tasks. Children with the combination of both tactile dysfunctions require more time to finish turn and translation tasks involved in in-hand manipulation (Case-Smith, 1991).

Children with sensory defensiveness often have deficits in their gross motor skills due to a lack of desire to explore their environment. Kinnealey (1998) describes a child’s lack of equilibrium causing her to avoid balance activities and to be exceedingly cautious while climbing, swinging, sliding, and riding toys. Reeves (1998) reports a case study of a six-year-old boy who demonstrated reduced muscle tone and poor stability of the trunk, shoulders, scapula, and pelvis. Specifically, he had problems with tactile discrimination, joint perception, standing and walking, balance, replicating postures and movements with the hands, arms, and mouth, and duplicating designs on paper with a pencil.

A child’s behavior may fluctuate making it difficult for him/her to adapt and adjust to changing environments. Kinnealey (1998) portrays a case study of a child’s attention span and demeanor fluctuating and having problems calming down from an agitated state and prior to falling asleep. In addition, this three-year-old child demonstrated poor coping skills as she was observed to be “stubborn, resistant to change, overreacted and exhibited frequent temper tantrums, and was easily frustrated” (p. 295) by her defensiveness to auditory, gravitational, gustatory, tactile, and visual stimuli.
**Impact on Performance Patterns**

According to AOTA (2002), performance patterns are “patterns of behavior related to daily life activities that are habitual or routine” (p. 623). Habits are automatic behaviors that may either support or inhibit a person’s performance in daily life, and routines are “occupations with established sequences” (p. 623). The three types of habits include useful, impoverished, or dominating habits. Impoverished habits are “habits that need practice to improve” (p. 623), such as an inability to follow through with all parts of a self-care routine. Dominating habits are those that interrupt daily life because of their demanding or compulsive nature, such as hypersensitivity to touch denying a child the ability to interact with his/her peers.

Children with tactile defensiveness may become rigid in their behavior and may need a routine, predictable means of interacting with their environment; because with agitation or change, their behavior may become erratic. Baranek, Foster, & Berkson’s (1997) research data indicate that tactile defensiveness and some self-stimulatory behaviors (rigid behaviors, repetitive verbalizations, visual stereotypies, and abnormal focused affections) coexist in children with developmental disabilities.

**Impact on Client Factors**

Client factors are those that “reside within the client and that may affect performance in areas of occupation” (AOTA, 2002, p. 624). Client factors include body function (i.e. functions of mental, sensory and pain, neuromusculoskeletal and movement-related, cardiovascular and respiratory systems, voice and speech, digestive, metabolic and endocrine systems, and skin structures) and body structures (i.e. structures of the nervous system, eye, ear, and skin structures, and structures related to movement).
Children with tactile defensiveness often avoid interaction with their peers due to their fear of coming in physical contact with others. This leads to these children seeking solitary activities causing a stagnate social development. In addition, low self-esteem in children with tactile defensiveness is contributed to the behaviors associated with this dysfunction (Stephens & Royeen, 1998).

Increased anxiety and depression levels may be correlated with the behaviors associated with sensory defensiveness. A study performed by Kinnealey & Fuiek (1999) indicates that adults with sensory defensiveness experience higher anxiety and depression levels then that of the group with no sensory defensiveness symptoms present. Pfeiffer & Kinnealey (2003) show similar results in their study by determining a strong correlation between sensory defensiveness and increased anxiety levels in adult participants. The results of these studies corroborate with other literature findings that individuals with sensory defensiveness have intensified social and emotional issues and that the dysfunction is related to feelings of anxiety (Kinnealey & Fuiek, 1999).

Sears (1994) describes the following specific social and emotional responses that may be present in young children with tactile defensiveness:

- Dislikes hugging, kissing, holding, or cuddling
- Dislikes being picked up and often struggles when this occurs
- Becomes distressed and uncomfortable when physically close to people
- Dislikes being tickled
- May initiate touch but objects to being touched by others
- May have very poor peer and adult relationships
- Reacts negatively to friendly pats, rumpling of hair, soft stroking of back
- May rub or scratch the spot that someone has touched
- Is involved in or appears to pick frequent fights
- Has trouble making friends
- Becomes verbally or physically hostile or aggressive
- May become withdrawn
- Demonstrates excessive weeping
- Demonstrated emotional lability or anger
May react negatively to and avoid normal child’s play
Is easily irritated or enraged when touched by siblings or playmates
Pinches, kicks, or otherwise hurts self or others
Frequently bumps or pushes others
Bangs head on purpose
Prefers solitary play
Avoids water or sandbox play
Dislikes crowded areas such as playgrounds or shopping malls
Avoids crawling or walking barefoot in sand, grass, or on carpet (p. 51)

Evaluation of Sensory Defensiveness

Sensory defensiveness may be evaluated by an occupational therapist through interview and questionnaires with the child and parents, informal and clinical observations with presentation of different sensory stimuli, and standardized assessments (Parham & Mailloux, 2001; Stagnitti et al., 1999). According to Parham & Mailloux (2001), assessments should be chosen based on a child’s age, his/her presenting sensory problems, and deficits in functional areas. The results of all evaluative tools should be utilized to develop and implement an individualized treatment program for the child.

Based on current literature, the following list of formal and informal evaluations to assess a child with sensory defensiveness was compiled.

**Sensory Evaluations**

- The measure of habituation to tactile stimuli applied to the face (FACE-HAB) involves applying one light touch stimulus to the face (Baranek et al., 1997).
- A Sensory Checklist is completed by the parents to determine the child’s reactions to auditory, visual, taste/food, touch, and movement stimuli, and their emotional/social reaction and activity level in accordance to each stimulus (Stagnitti, et al., 1999).
The Sensory Integration and Praxis Tests (SIPT) are designed to evaluate children’s sensory processing and praxis through the domains of motor-free visual perception, somatosensory processing, praxis, and sensorimotor function (Reeves, 1998). SIPTs are the only set of standardized tests that measure sensory integration in-depth (Parham & Mailloux, 2001).

The Southern California Sensory Integration Test (SCSIT) involves subtests, which measure skills such as tactile function and in-hand manipulation (Case-Smith, 1991).

The Tactile Defensiveness and Discrimination Test (TDDT) is used to assess behaviors related to tactile defensiveness and tactile discrimination in children with developmental disabilities (Baranek et al., 1997).

The Touch Inventory for Preschoolers (TIP) (Beranek, Foster, Berkson, 1997) and The Touch Inventory for Elementary School Aged Children (TIE) are assessments for children which measure the extent of behaviors associated with tactile defensiveness (Hotz & Royeen, 1998; Stagnitti et al., 1999; Stephens & Royeen, 1998).

Other Evaluations

The majority of authors recommend using additional evaluations, along with a sensory evaluation, to gain a more complete picture of the child’s strengths and weaknesses (Baranek et al., 1997; Kinnealey, 1998; Stagnitte et al., 1999; Stephens & Royeen, 1998;). The following are non sensory evaluations commonly used in the literature reviewed to assess a child’s behaviors associated with sensory defensiveness.
- The Behavioural Style Questionnaire assesses a child’s shifts in behavior over time (Kinnealey, 1998).
- The Miller Assessment for Preschoolers (MAP) provides a broad overview of a child’s development (Stagnitte et al., 1999) including tests of stereognosis, tactile perception, and some vestibular functions (Parham & Mailloux, 2001).
- The Piers Harris Children’s Self-Concept Scale measures children’s personal feelings towards themselves through a self-report (Stephens & Royeen, 1998).
- The stereotyped behavior checklist (SBC) is a 54-itemed questionnaire addressing stereotyped and other unusual behaviors present (Baranek et al., 1997).
- The Bruininks-Oseretsky Test of Motor Proficiency measures features of fine and gross motor skills that correlate to sensory integrative function (Parham & Mailloux, 2001).
- Developmental Test of Visual Motor Integration assesses visual-perceptual and perceptual-motor skills (Parham & Mailloux, 2001).

This list of formal and informal evaluations is just an example of the evaluations available to assess children with sensory defensiveness; evaluation results are then used to design and implement a treatment program.

Treatment of Sensory Defensiveness

An emphasis is placed on the importance of evidence-based practice, along with clinical reasoning, in a professionally credible occupational therapist. The lack of research evidence for the sensory integration framework is due to “a lack of replicable intervention guide, inability to define homogenous samples, lack of sensitive and
appropriate outcome measures, and lack of a rigorous methodology” (Foss, Swinth, McGruder, & Tomlin, 2003, p. CE-2).

Kinnealey (1998) reports that the treatment goals of a child with sensory defensiveness should be related to specific deficits in the child’s functioning since reductions in defensiveness are difficult to measure. The occupational therapist needs to utilize parent and child input, along with observation, interview, and evaluations to determine the objectives of the child’s treatment. “It is crucial that the child has control yet, feels safe” (p. 297) during the intervention process. Along with clinical sensory treatment by an occupational therapist, an easy-to-use home program, involving sensory strategies during activities of daily living and play activities and environmental modification, needs to be implemented by the child’s parent to receive optimal outcomes (Stagnitti et al, 1999).

Parham & Mailloux (2001) refers to two classifications of occupational therapy treatment: classical sensory integration treatment and compensatory skill development. Classical sensory integration treatment is individualized occupational therapy involving remediation of sensory integrative dysfunction in children and was developed by Jane Ayres. Treatment activities need to be modified during treatment session in order to optimize the child’s interest and motivation level during each activity. The main concepts to this type of treatment are “balance between structure and freedom,…emphasis on the inner drive (i.e. self-directed therapy) of the child…[as] an active participant,…[and] a sensory-enriched environment” (pp. 362-364). To complement or replace the classical treatment, the compensatory skill development approach may be implemented. This involves assisting the child and his/her parents to
learn specific strategies to cope with the sensory dysfunction. The approach may be utilized during the following situations with children who: (1) have reached a plateau in their classical treatment, (2) arrived at an age where gains will be minimal, (3) are unmotivated in current treatment, (4) demonstrate no improvement after 6-months of treatment, or (5) have achieved a specific skill immediately (p. 365).

Sensory integration, according to Parham & Mailloux (2001), is a frame of reference used by occupational therapists to treat individuals with sensory processing disorders, such as sensory defensiveness. The six guidelines to follow for sensory integrative treatment include:

1. Controlled sensory input can be used to elicit an adaptive response.
2. Registration of meaningful sensory input is necessary before an adaptive response can be made.
3. An adaptive response contributes to the development of sensory integration.
4. Better organization of adaptive responses enhances the child’s general behavioral organization.
5. More mature and complex patterns of behavior are composed of consolidations of more primitive behaviors.
6. The more inner-directed a child’s activities are, the greater the potential of the activities for improving neural organization (p. 361).

Case-Smith (1991) recommends implementing calming and focusing strategies prior to initiating motor tasks. In addition, the child’s sensory system should be made ready to interact with environmental stimulation through “touch pressure or slow linear vestibular stimulation” (p. 816) and then slowly introducing various textures that may be graded (e.g. smooth to rough) as the child’s tolerance increases. These techniques should always be followed up by a functional activity that is meaningful to the child.

Although the physical behaviors associated with sensory defensiveness are most frequently observed, according to Pfeiffer and Kinnealey (2003), this dysfunction also has social-emotional impact. These issues are more difficult to address in treatment than
the physical aspects; however, improvement of the physical issues often creates progress in the psychosocial issues simultaneously. The authors demonstrate in their study that sensory defensiveness treatment is effective in diminishing both sensory defensiveness and anxiety.

Self-esteem is affected negatively in children with tactile defensiveness and should be addressed in their treatment. In addition to a better self concept, increasing a child’s self-esteem may assist in promoting his/her performance in everyday life activities, such as greater participation in group activities and improved academic accomplishments (Stephens & Royeen, 1998). According to Parham & Mailloux (2001), increased self-confidence and self-esteem may be accomplished by a child successfully completing a meaningful task that has not been mastered previously.

Reeves (1998) documented successful treatment of a 6-year-old male kindergartener with hypersensitivity to tactile, visual, and auditory stimuli, developmental delays in fine-motor skills, low frustration tolerance level, poor eating habits, unusual fears of abandonment, and a low self-esteem. The child had 9 months of occupational therapy treatment with the following goals: “(1) address his hyperresponsivity to various stimuli…by decreasing these responses, (2) to improve his participation in self-care occupations, (3) to improve fine-motor performance, and (4) to improve his self-esteem” (pp. 307-308). After termination of occupational therapy services, the participant demonstrated better adaptability to routine changes, an expanded food selection (he was still selective about texture variations), independent grooming and self-care, and a decreased sensitivity to noise.
The Wilbarger Protocol is a brushing intervention designed to treat individuals with sensory modulation dysfunction (SMD), specifically overresponsiveness. SMD has a negative effect on an individual’s functional performance in activities of daily living and leisure participation (Foss et al., 2003). Stagnitti et al. (1999) describe The Wilbarger Protocol’s three areas of intervention. First, an explanation of the child’s specific situation involving SMD is given in order to decrease any anxiety felt from the child and/or his/her parents. Next, a “sensory diet” or environmental modification is implemented. A “sensory diet” may involve relaxation techniques, deep skin pressure, slow rhythmic movements, neutral warmth, and/or joint compression. Environmental modifications may include reducing external sensory stimuli and unanticipated touch and increasing appropriate sensory experiences. The last intervention area is direct treatment intervention of sensory summation technique. This technique involves “brushing vigorously and firmly in a scrubbing motion on the arms, legs, and back with a soft surgical brush [and then] apply 10 gentle deep pressure cocontractions to the joints of the arms and legs, then gently stroke the fingers and toes” (p. 180). This is done every 2 hours of daylight for 2 weeks.

According to Stagnitti, et al. (1999), two-two week sessions of Wilbarger & Wilbarger’s sensory summation technique along with a home treatment program based on a “sensory diet” proved to be an effective form of treatment for a child with sensory defensiveness, improving the child’s performance and disposition in school and at home. Research results have shown potential positive results for children using the Wilbarger Protocol. Reported and observed results include reduced distress during participation in group activities, decreased tactile defensiveness, diminished tantrums in school,
improved social interaction and play participation, increased eye-hand/eye-foot coordination, happier affect, and positive functional outcomes in response to movement, hand washing, and oral stimuli. Despite these positive attributes, the Wilbarger Protocol has some negative aspects. This protocol is considered to be a “complementary and alternative treatment” (Foss et al., 2003, p. CE-6) for persons with SMD and should be used in addition to other sensory integrative theory interventions (i.e. sensory diet). In addition, it is difficult to administer secondary to the lengthy time investment to fully implement the protocol (Foss et al., 2003).

Parent Involvement

The term parent is most commonly perceived as someone who provides the basic needs of food, shelter, clothing, and love. According to AOTA (2002), a parent involves “arranging, supervising, or providing the care for others” (p. 620). However, a child with one or more disabilities may require substantially more specialized care and attention from his/her parents.

Roles of Parents

Parents serve as an advocate for their child’s needs, which entails numerous functions in itself. Hotz and Royeen (1998) state that parent input is vital to the success of the treatment process since they are closest to the child and have the most accurate insight into what the child and family needs and how the needs of all involved may be met. According to the authors, mothers share a similar perception of their child’s tactile defensiveness to that of their child and they may be able to provide a better description of their child’s reaction to certain sensory stimuli.
Another role of the parents is to establish daily routines for their child. Keelegrew (2000) describes the construction of daily routines as being affected by "broad ecocultural variables and a reciprocal relationship unique to each parent-child dyad" (pp. 257-258). The author’s findings indicate that cultural values and ecological variables (i.e. family resources and time) mainly contribute to the creation of self-care routines. Time demands prove to be the major environmental factor influencing the "cultural goals and practices of the family" (p. 258). In addition, this study’s results indicate that mothers consistently make small adjustments to the daily routine based on "accommodation to everyday events and anticipation of future needs" (p. 258).

According to Viscardis (1998), parents need to work congruently with the occupational therapist, as equal partners, in order to develop a more conducive treatment plan that fits within the child’s and his/her family’s lifestyle. The author reports that a "family-centered approach" is most optimal for treatment of a child and that it consists of an individualized, "collaborative relationship between families and professionals" (p. 45) that "results in a service plan which responds to the needs of the whole family" (p. 44). In this approach, "families have the strength, capacity, ability, right, and responsibility to learn about their options and make informed choices and decisions as partners with the people who work with them and their children" (p.42). The role of a parent of a child with disabilities is an ever changing, life-long responsibility.

**Parent Concerns**

Parents of a child with sensory defensiveness may have numerous concerns regarding the well being of their child and of themselves. It is the role of the occupational therapist to befriend the parents and provide them with emotional support.
and encouragement during the intervention process. According to Pollock & Stewart (1998), parents are mainly concerned with issues involving mobility, self-care, play, socialization, and school behavior. A concern a parent who is employed full-time may encounter is that he/she may want to spend “quality time” with his/her child and not have to worry about completing therapeutic exercises with the child (Thompson, 1998). Therefore, a home program needs to encompass practical therapeutic activities that are easily incorporated into activities of daily living and play.

Pollock & Stewart (1998) identify various concerns reported by parents and teachers of children with disabilities related to the child’s treatment:

- Adapt the environment, instead of changing the child.
- Integrate practical intervention strategies into daily schedules and activities.
- Develop flexible, individualized programs.
- Prepare the parents for upcoming issues that may present a problem.
- Provide encouragement for parent ideas and decisions.
- Reveal personal knowledge and experience with parents by educating them on child development and the child’s disability.
- Communicate with the care team and parents on the child’s progress and new intervention strategies.
- Be an advocate for the parents and child (pp. 64-65).

Kinnealy (1998) reports that often parents may feel like a “hostage” when interacting with their child; acting any way possible not to upset their child or further escalate the situation. Outsiders may perceive the parents as being the source of the child’s problems because they are not setting proper boundaries for their child. According to Thompson (1998), mothers of children with disabilities often rate their performance and efforts based on the progress of their children. However, Pollock & Stewart (1998) reveal that parents, and even teachers, of children with disabilities often feel unsure if they place appropriate expectations on the child and that they have an insufficient amount of information to make educated decisions and modifications.
Therefore, the occupational therapist working with the family needs to make it clear to the parents that they are not to blame for their child’s delays. Their protective reactions and involvement provides their child with a safe feeling in his/her anguished-filled environment and an opportunity for development (Kinnealey).

Thompson (1998) notes that parents not only have the responsibility to care for and implement home treatment interventions for their child with disabilities, but they may have to consider the affect of this attention on other children in the household. She reinforces the idea of involving siblings in the intervention process of their sibling with a disability. This may reduce feelings of jealousy and promote a sense of inclusion in siblings and enhance the familial bond.

Roles of an Occupational Therapist

When working with families, an occupational therapist needs to develop a rapport with the family and a comprehension of each family’s unique circumstances; this understanding needs to be communicated to the parents. Due to the high levels of stress and frustration felt by parents of a child with disabilities, emotional support and encouragement is an important role of a therapist. Additionally, therapists need to honestly respond to parent questions and concerns, and supply information to parents regarding the child’s disability and corresponding services. When a therapist provides cases similar to the family’s situation, it allows parents to elude feeling singled-out or alone in their circumstances (Thompson, 1998).

However, according to Thompson (1998), many obstacles may exist in working effectively in a collaborative relationship with parents. These obstacles include time and schedule conflicts and therapists’ lack of opportunities to work with and educate families
of their patients. Therapists that receive deficient marks related to family involvement are seen as having “a lack of explanations regarding the child’s condition, a dismissal of worries, and a lack of understanding of the problems involved in handling the child” (p. 208).

Overall, occupational therapists who work with families need to possess qualities of good communication skills, a comfortable relaxed attitude, flexible schedule and methods, and an understanding of the importance of family involvement in the treatment process.

Conclusion

Sensory defensiveness, a hyperresponsivity in one or more sensory systems (i.e. auditory, visual, tactile, and/or vestibular) (Parham & Mailloux, 2001), may negatively affect a child’s areas of occupation, performance skills/patterns, and/or his/her client factors. After assessing a child’s strengths and weaknesses through evaluations, interviews, and/or observation, a clinical and home program plan may be developed based on his/her sensory needs. The child’s parents and occupational therapist need to collaborate during the whole intervention process to provide the child with the best and most appropriate treatment. Because dealing with a child’s sensory problems and associated behaviors may be frustrating and stressful for the child and his/her parents, the parents need a helpful, simple guide to use at home to assist their child in successfully completing his/her daily occupations.
CHAPTER III
ACTIVITIES AND METHODOLOGY

Due to an interest in the pediatric population, the author focused on this area for an idea for the scholarly project. An interest in sensory integration was developed through pediatric coursework in the Master’s of Occupational Therapy program at the University of North Dakota. With further investigation into sensory integration dysfunction and treatment, a particular interest in sensory defensiveness evolved. A broad base of literature was reviewed on the treatment of sensory defensiveness, but the author did not find any simple guides designed specifically for parents of children with sensory defensiveness. Therefore, a topic proposal was written, submitted, and approved for the development of a protocol for parents and their child with sensory defensiveness. The final product of this scholarly project was the creation of the Home Program Guide for Parents and Their Child with Sensory Defensiveness.

In order to have accurate information in the Home Program Guide, a review of current literature was completed. This review included literature from journals and books in the areas of: definition and types of sensory defensiveness, the etiology of sensory defensiveness, relationship of sensory defensiveness to the occupational therapy framework, evaluation and treatment of sensory defensiveness, parental roles and concerns, and the role of the occupational therapist in the treatment of a child with sensory defensiveness.
The author integrated the information compiled through the review of literature into a functional, easy-to-follow guide for use by parents who have a child with sensory defensiveness. While developing the product, the author concluded that the term “guide” was a better fit than “protocol,” since it encompassed a wide variety of sensory strategies and activities for the parents to pick and choose from based on their child’s individual sensory needs. Although various sensory defensiveness strategies are used, the focus of the Guide is on tactile defensiveness, since Parham & Mailloux (2001) stated that it is the most frequently observed sensory integrative disorder involving sensory modulation.

The expectation of the finished scholarly project is a helpful, easy-to-use home program guide that the author and other occupational therapists may use in practice to compliment clinical interventions and assist parents and their child with sensory defensiveness for successful participation in activities of daily living and other meaningful occupations.
CHAPTER IV

PRODUCT

The highly aroused nervous system in a child with sensory defensiveness may cause him/her to perceive typically nonthreatening stimuli as potentially harmful. Everyday occupations may be stressful and frustrating for both the child and his/her parents. Along with clinical sensory integration treatment by an occupational therapist, an easy-to-use home program guide needs to be implemented by the child's parent in order to gain optimal outcomes in the child's occupational performance (Stagnitti et al, 1999). The product of this project, Home Program Guide for Parents and Their Child With Sensory Defensiveness, was developed to meet this need and is located in the following pages.

Tactile defensiveness is the main focus of the Home Program Guide because it, according to Case-Smith (2001), is the most frequently observed sensory integrative disorder involving sensory modulation. The Guide involves sensory integration interventions for the parents to follow that will reduce the child's defensiveness to tactile sensory input. Remedial and compensatory strategies are utilized during the child's activities of daily living; and since a child's most important occupation is play, various play activities are incorporated into the Guide's treatment interventions. In addition, home environmental modifications are listed to further promote the child's successful participation in his/her environment. A daily sensory log is included in this Guide to assist parents in reporting an accurate description of the child's reaction to certain sensory
stimuli to the occupational therapist. This Guide is designed to be used by occupational therapists treating children with sensory integration dysfunction. The purpose of the Guide is for the therapist to use it with the parents and their child to assist them in alleviating frustration and stress while performing the child's daily occupations.
Home Program Guide for Parents and Their Child With Sensory Defensiveness

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COLLABORATION WITH THE OCCUPATIONAL THERAPIST

As a parent, you serve as your child's main advocate for his/her needs and may be able to present a better description of your child's reactions and behaviors related to certain sensory stimuli. Therefore, in order to develop a more conducive treatment plan that fits within your child's and your family's lifestyle, it is important to work congruently with the occupational therapist.

Your roles as a parent may include, but are not limited to, the following:

- Implement home treatment interventions.
- Report any questions or concerns to your occupational therapist.
- Keep a daily sensory log for your child and report his/her reactions to sensory stimuli to your therapist.
- Communicate to the therapist any change in your child's behavior and/or performance.
- Provide any ideas for intervention strategies to your therapist.

Through collaboration with your occupational therapist, an individualized sensory integration treatment plan will be implemented by you and your occupational therapist. Although your child's sensory defensiveness will not be cured through this treatment, Case-Smith (2001) describe the following objectives that may be attained by your child:

- Increased frequency in adaptive responses to sensory stimuli
- Gross and fine motor improvement
- Improvement in cognitive, language, and academic performance
- Higher self-confidence and self-esteem
- Greater success in daily occupations and social participation
EXPLANATION OF CONDITION

The central nervous system of a child with sensory defensiveness is highly aroused causing the child to perceive typically nonthreatening stimuli as potentially harmful; this may cause the child feel anxious, restless, frustrated, afraid, distracted, and emotionally distressed (Case-Smith, 2001). Children with sensory defensiveness may be negatively affected by one or more types of stimuli causing them to overreact to touch, movement, sound, odors, and tastes. According to Yack, Sutton, & Aquilla (1998), the types of sensory defensiveness include:

- **Tactile defensiveness** may lead to a child avoiding touch from others and/or having a negative reaction to particular textiles.

- **Auditory defensiveness** involves a hypersensitivity to loud, sudden or certain sounds.

- **Visual defensiveness** results in a child reacting negatively to bright or specific types of light and/or may avoid eye contact.

- **Oral defensiveness** presents with a hypersensitivity to touch, smell, and taste which may cause an adverse reaction to certain food types and textures, brushing teeth, and washing the face.

- **Gravitational insecurity** refers to feelings of anxiety and aversion to movement and shifts in body and head position.
GENERAL STRATEGIES FOR THE HOME

- Maintain a consistent daily routine
- Post an activity schedule in an easily accessible site
- Be sure to reward your child for his/her effort. Your child’s preferred sensory stimulations make great rewards.
- Encourage your child to sustain his/her attention to one activity as long as possible; this will increase his/her ability to attend other tasks, such as ADLs and school tasks, for longer periods of time.
- Challenging your child by making the next task slightly more difficult than the previous accomplishment allows him/her to develop more complex skills. Remember that repetition helps your child learn a new skill and more challenging tasks should be offered only when your child has mastered the prior skill.
- Be aware of your child’s signs of emotional and physical distress. If you believe your child is becoming anxious, take a break from stressful sensory stimuli.

(The above is adapted from Parham, L. D., & Mailloux, Z., 2001; Miller-Kuhaneck, 2004.)
SENSORY APPROACHES FOR ACTIVITIES OF DAILY LIVING

Under normal circumstances, completing activities of daily living (ADLs) for a child is stressful and frustrating for both the child and his/her parent. Time constraints may play a role in causing these anxieties. Adding sensory defensiveness to the mix creates exacerbation of the distressed emotions or the child just completely avoids the situation. However, ADLs are necessary in order for your child to maintain his/her health and participate in other areas of occupation successfully. Sensory strategies to approach grooming, dressing, eating, and sleep/rest tasks are listed on the following pages. These strategies may help to decrease the anxiety associated with these activities; and additionally help to increase your child's tolerance of sensory stimulation.
Grooming tasks include bathing, brushing hair, and brushing teeth.

General sensory strategies for grooming tasks include:

- Use visual aids to increase understanding (e.g. task shown on doll and/or photographs).
- Maintain a consistent and predictable routine to reduce anxiety (use visual schedules).
- Keep environment organized and clean to decrease distractibility.
- When child is upset, utilize calming strategies.
- Prepare with deep pressure touch and massage.
- Utilize music with a steady beat during grooming routine.

(The above was adapted from Yack, Sutton, & Aquilla, 1998.)
Bathing

○ Use unscented soap at first and then gradually introduce scented and colored soaps as tolerated.

○ Use a soft wash cloth and deep pressure and downward strokes for massage when washing.

○ Keep water at a warm temperature that the child is comfortable with as tested by his/her hand.

○ A shower and bath offer varying tactile input and requirements in body position changes (a bath requires more changes in body position). Give the child a choice, but try to challenge the child to switch when he/she is progressing in treatment.

○ Make washing fun by incorporating play into the task (e.g. use toys and/or use shaving cream/bathing foam to spray on the bathtub walls and child's body).

○ A small hand towel is easier to control when drying off and requires more visual direction.

○ Provide deep massage, with lotion, after bathing.

(The above was adapted from Yack et al., 1998; Miller-Kuhaneck, 2004.)
Hair Brushing

- Use a brush with a bigger brush head.
- Use a brush with an adapted handle (e.g. soft grip).
- Use firm brush strokes.
- Brush in front of a mirror to provide visual simulation.
- Allow your child to brush his/her own hair.
- Prepare with a deep pressure scalp massage.
- Detangle hair from the bottom-up.

Teeth Brushing

- A face cloth may be used to wipe the teeth.
- Apply deep pressure to the teeth and gums to reduce sensitivity.
- Use mild-flavored toothpaste.
- An electric, vibrating toothbrush may be calming and decrease sensitivity.
- Prepare by performing joint compression to head, neck, and shoulders.

(The above was adapted from Yack et al., 1998.)
Dressing

- Utilize deep pressure before dressing.
- Buy clothing with fabric that feels comfortable (i.e. soft textures like fleece).
- Wear undergarments wrong side out to avoid scratchy seams and tags.
- To make tolerant of hats, use scalp massage and put a hat on in front of a mirror.
- Minimize visual and auditory distractions when dressing.
- Try dressing in front of a mirror to visually aid with motor planning.
- Allow the child to participate as much as possible during dressing (e.g. let him/her finish pulling the zipper up).
- Dress while in one standard position, if child dislikes changing body position.
- Cut clothing labels out.
- Wash and dry clothes in unscented laundry detergent and fabric softener.
- Wear solid patterned clothing to decrease distractibility from noxious patterns.
- Wear loose clothing.
- Lace-up shoes may be tightened to an appropriate comfort level.
- Prepare the child by choosing and setting clothes out the night before.
- Incorporate dressing a doll into the dressing routine.

(The above was adapted from Yack et al., 1998.)
Eating

- Be cautious of textures and temperature of foods.
- Rinsing mouth with water between bites may be beneficial.
- Prepare by applying deep pressure to cheeks, lips, gums, teeth, and tongue.
- Try to eat at times of low stress and no time constraints.
- Use weighted utensils and/or cups to provide more sensory input.
- Utilize a weighted vest or weighted lap blanket to promote sitting still and a calming affect.
- Desensitize mouth with frozen treats (e.g. ice cubes or popsicles).
- Decrease other external sensory stimuli (i.e. visual and auditory), if it’s distracting to your child.
- Encourage use of oral motor play at times outside of mealtime (e.g. whistles and/or kazoos).
- Utilize slow, low sensory activities before mealtime to decrease sensory overload.
- Try playing music with a slow, steady beat during mealtime.
- List and organize your child’s likable foods by their sensory properties (i.e. taste, texture, color, or smell). Expand your child’s food selection by introducing new foods with similar properties of his/her acceptable foods.
Make sure your child feels safe and comfortable and is willing before trying a new variety of food.

Before introducing unfamiliar foods at mealtime, allow your child to play with them away from mealtime, so that he/she becomes comfortable with the color, smell, and feeling in his/her hands.

Involve your child in meal preparation and clean-up tasks so that he/she knows what the beginning and end is of mealtime.

Promote eating of chewy foods and drinking from a straw.

Try having your child sit on an aircushion to allow more freedom of movement.

(The above was adapted from Yack et al., 1998; Morris, 1999; Miller-Kuhaneck, 2004).
Resting and Sleeping

- Try deep massage using powder or lotion prior to bedtime.
- Joint compression may also be done before bedtime.
- Weighted and/or heated blankets may be used while sleeping.
- Try various fabrics for pajamas (i.e. silky or fleece).
- Decrease external distraction by using a bed tent.
- Use neutral, warm wall colors and dark blinds to reduce light.
- Try making a confined space for the child to lay to provide continual pressure during sleep.
- Maintain a predictable routine before bedtime.
- Have quiet, down-time prior to bedtime, such as reading in a quiet, monotone voice.

(The above was adapted from Yack et al., 1998.)
Because play is the most important occupation in a child's life, sensory stimulation interventions are incorporated into play activities in this section. This provides the child with a feeling of comfort because he/she is doing the thing he/she does best—playing. And you are able to spend more quality time with your child while providing sensory stimulation to your child. The following list of play activities are adapted from Vander Roest & Clements, 1983; Miller-Kuhaneck, 2004.
Tactile Stimulation

- **Hide-and-Seek Rice.** Place rice and/or beans in a plastic container and hide small toys inside the container. Now let your child find the toys. You can use colored rice to add more visual stimulation or have your child close his/her eyes to make the game more challenging.

- **Body Messages.** Take turns with your child writing words and/or messages on each others back, arms, and legs, while the other tries to decode the message.

- **Human Musical Instruments.** Pretend to play the drums and piano on your child's body to the beat of music in the background. Vary your pressure as you see appropriate for your child. Switch roles to allow your child to join in on the fun.

- **Stereognosis Game.** Blindfold your child or have him/her close his/her eyes and place a familiar object in his/her hand. Have him/her manipulate it in his/her hand and on his/her cheek, arms, chest, and legs in order to guess the item's name. You may also present various scents and/or sounds.

- **Matching Textures.** With your child's vision occluded, give him/her three textured squares or objects and allow your child to match the two that are the same using his/her tactile sense.

- **Reading.** Have your child read books while sitting in a bean-bag chair.
© **Tunnel Crawl.** Place a mat or pillows in an upside down V shape with enough room for your child to crawl through. Have him/her use his/her imagination (e.g. crawling on the floor of a jungle to escape enemies) and crawl through the tunnel on back, on stomach, head or feet first.

© **Finger Painting.** Besides typical paints, various materials may be used, such as, shaving cream in the bathtub or pudding/yogurt on a plate with nuts or fruit added to alter the texture.

© **Goo Balls.** Mix corn starch and water so it's thick enough to stick together. Have your child manipulate the goo into any forms, but he/she must work fast because the faster it is worked the more solid and if left alone, it will return to a liquid. Various objects (e.g. beans, rice) may be added to the mixture to alter its texture and/or food coloring may be added to make the mixture more visually stimulating.

© **Newspaper Games.** Crumpled up newspaper may be used for as many purposes as can be imagined. They may be leaves that have to be stomped or rolled through, snowballs in a snowball fight, or bugs that need swatted.

© **Ball Games.** Numerous games may be played with balls of varying weight and texture, such as playing catch, kicking a ball, or rolling it to knock down pins (bowling).
- **Sandwich Game.** Have your child pretend to be a sandwich and lay in between two pillows while you provide a desired amount of pressure to the top pillow.

  Proprioceptive Input

- **Human Wheelbarrow.** Have your child lay on his/her stomach with a stiff body. Grab his/her ankles and have him/her bear weight on his/her hands, then he/she can walk around on his/her hands as you hold his/her legs.

- **Take a Walk.** While taking a walk with your child, let him/her pull a wagon or push a stroller with objects of his/her choice that has some weight to it.

- **Swimming.** Various games (e.g. basketball or diving for sunken objects) may be played in a pool. This provides proprioceptive input throughout the child's body.

- **Wearing a Weighted Vest.** This may be used during most activities to increase the amount of sensory input.
Vestibular Input

- **Limbo.** This game may be played with music if desired and your child is tolerant of it. To add tactile stimulation to the activity, the limbo bar may be lowered so your child has to squiggle on the ground like a snake.

- **Reading.** Read your child a book while rocking in a rocking chair.

- **Hopscotch.** This game offers great vestibular stimulation with jumping, turning around, and bending over to pick up the rock. Various objects may be used to substitute the rock (e.g. a squishy ball) to vary the tactile stimulus.


**Miscellaneous Activities**

- **Charades.** This game may create opportunities for different sensory stimulation. Have your child draw a cue and act it out until it is guessed. Cues may include animals, sports, music, movies, etc.; difficulty will depend upon the skill level of the children involved.

- **Simon Says and Follow-the-Leader.** Like Charades, these games can offer numerous amounts of sensory input. Commands may include: hop, touch your nose, rub your stomach, clap your hands, etc. Take turns being the leader.

- **Playground.** The playground is full of activities that provide sensory input, such as swings, slides, and walking in the grass and sand. Be cautious that your child is not overloaded with sensory input by paying attention to his/her signs of anxiety. Let him/her choose the activity, but also try to encourage him/her to try new ones.

- **Dancing.** The "Hokey-Pokey", "I’m a Little Teapot", "Bunny Hop" or general dancing to music can provide proprioceptive, vestibular, and tactile input, as well as, increasing motor planning skills.

- **Obstacle Course.** An obstacle course may be set up to fit the sensory needs of your child. He/She may be timed so that he/she can strive to beat his/her best time or that of other children. Ideas may be to jump over a pillow, zigzag around cans, crawl through a tunnel, log roll/hop a certain distance, and/or bounce/toss a ball.
HOME ENVIRONMENTAL MODIFICATIONS

One of the objectives of your child's sensory treatment is to find an appropriate fit between your child and environment. Previously, compensatory and remedial strategies were discussed to assist your child in meeting the sensory demands of the environment. Compensatory strategies may also include adapting the environment to increase your child's successful participation and frequency of adaptive responses in his/her daily occupations (Case-Smith, 2001). Modifications that may be made to your home environment include:

- Make a small area (e.g. tent or a corner with pillows) for your child to escape from strenuous sensory stimulation.
- Use soft lighting to reduce glare and visual distraction.
- Keep the environment clutter free to decrease visual overload.
- Post a schedule of activities in a place that is easily accessible to your child so he/she is aware and can prepare for activities and schedule changes.
- Use auditory timers to warn your child of the beginning and end of an activity.
- Paint your child's room in soft, pastel colors.
- Keep background noises to a minimum.

(The above is adapted from Yack et al., 1998.)
DAILY SENSORY LOG

By keeping a log of the type of sensory input, the time of day it was offered, and your child's reaction, you can better accommodate to the sensory needs of your child. You may use this form to provide an accurate description of your child's behavior to certain sensory stimuli to your occupational therapist so that treatment interventions may be modified for a more appropriate fit the needs of your child and family.

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REFERENCES


CHAPTER V

SUMMARY

This *Home Program Guide for Parents and Their Child with Sensory Defensiveness* is intended to for use by parents at home during the child’s activities of daily living and play activities. This Guide is in no means a complete collection of all the sensory integration techniques that are available for parents to use at home. However, it does contain a wide variety of sensory strategies and guidelines for parents to pick and choose the most appropriate ones for their child’s individual sensory needs. This Guide should be used under the guidance of the occupational therapist who is treating the child and who has specialized training in the area of sensory integration intervention techniques.

The lack of research evidence for the sensory integration framework is due in part to “a lack of replicable intervention guide” (Foss et al., 2003, p. CE-2). Because the author has no formal training in sensory integration and minimal clinical experience, the Guide should be tested for its effectiveness and applicability to children with sensory defensiveness. In addition, with certification in sensory integration and further experience, the Guide may be modified by the author to be based on not only literature findings, but also on invaluable clinical experience. Further reliable and valid research on sensory integrative dysfunction and intervention techniques is recommended in order to make the practice of it more evidence based.
References


