

## Case Study - The Listening Program

M.S., 5 year-old male, ADHD, PDD-NOS and Sensory Processing Disorder

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Name: M.S.

Gender: Male

Chronological Age: 5 years

Clinical Diagnosis: ADHD, PDD-NOS, and Sensory Processing Disorder



### DEVELOPMENTAL HISTORY

M.S. is a five-year-old male with a reported diagnosis of ADHD, PDD-NOS, and Sensory Processing Disorder. He was born at 40 weeks gestation, 8 lbs. 9 oz. with vacuum extraction after 45 minutes in birth canal. M.S. obtained his motor milestones within normal limits (WNL) and was independent with toilet training at four years, six months. His first word occurred at 8 months, two words combined at 18 months, 3-4 word phrases occurred 36 months, sentences 40 months, and conversation language emerged at 42 months. M.S. has a history of ear infections with tubes placed at 24 months and there were no other issues related to ear infections after that. He had a hearing assessment obtained with results WNL. Additionally his visual skills are also WNL; he is right hand dominant for all tasks.

M.S. previously attended a special education preschool in a public school district for one year and currently attends a private regular preschool three days per week for three hours per day. M.S. started receiving speech and language services since 2003 and occupational therapy services in December 2005. He currently is receiving occupational and speech therapy services from a pediatric outpatient rehabilitation center.

### OCCUPATIONAL THERAPY PLAN OF CARE AT THE TIME OF STARTING THE LISTENING PROGRAM®

Parent/family objectives (based upon the Canadian Occupational Performance Measure):

M.S. will decrease his excessive activity that occurs in the late afternoon/early evening in order to participate in meals and structured activities

M.S. will decrease his aggression when playing with siblings and peers at home

M.S. will tolerate a wide variety of wet/sticky/dry textures during play activities at home

Occupational Therapy short-term objectives:

M.S. will wait 30-60 seconds for an activity without impulsively engaging in a therapist or parent directed activity

M.S. will tolerate play in wet and sticky textures for up to 5 minutes given 1-2 verbal cues to remain engaged, ¾ sessions

M.S. will participate in a sensory diet for twenty minutes or more to help modulate his sensory system at the end of the day, 5/7 days, per parent report

Occupational Performance strengths and deficits:

Strengths

Cognitive Skills  
Gross Motor Skills  
Self Help/Feeding and Eating

Deficits

Expressive/Receptive Language Delays  
Social Skills  
Sensory processing difficulties [hyper sensitive to sound, touch, and multi-sensory processing (cumulative impact)]  
Attention/Impulsivity

Occupational therapy services prior to and during TLP were designed around a traditional Sensory Integration Frame of Reference in order to normalize his arousal level and improve his engagement and participation in sensory-based occupations (play and self care skills).

TESTING PRIOR TO STARTING TLP LEVEL ONE KIT

Client History Form (pre TLP)

Sensory Profile (pre and post TLP after one cycle)

Peabody Developmental Motor Scales 2nd Edition [(scores indicated at or above developmental level for visual motor integration and grasping skills) pre TLP]

- o Grasping - raw score of 49, 37th percentile, - 0.33 standard deviations below the mean
- o Visual Motor Integration – raw score of 137, 63rd percentile, +0.33 standard deviations above the mean

Listening Checklist (pre and post TLP after one cycle).

Home video footage obtained by caregiver's pre TLP (12/05) and post TLP (6/06).

AREAS OF CONCERN BASED UPON THE TOMATIS ZONE

Zone One – sound sensitivity, touch sensitivity, multi-processing sensitivity and aggressive behavior.

Zone Two – receptive and expressive language and attention/impulsivity.

Zone Three – creativity/ideas (play skills) as well as expressive and receptive language.

TLP PROGRAM IMPLEMENTATION: 2/21/06 TO 6/06

M.S. was placed on the Base Schedule of two times per day for 15 minutes. He completed a total of two cycles. Prior to beginning the Level One Kit he completed four modules of SI Classic during occupational therapy sessions. After completing his first cycle, M.S. listened to SI Kids for two weeks then commenced to complete his second cycle. M.S. used a personal CD player and Sennheiser HD 515 headphones.

PRE TLP CHRISTMAS PROGRAM 2005

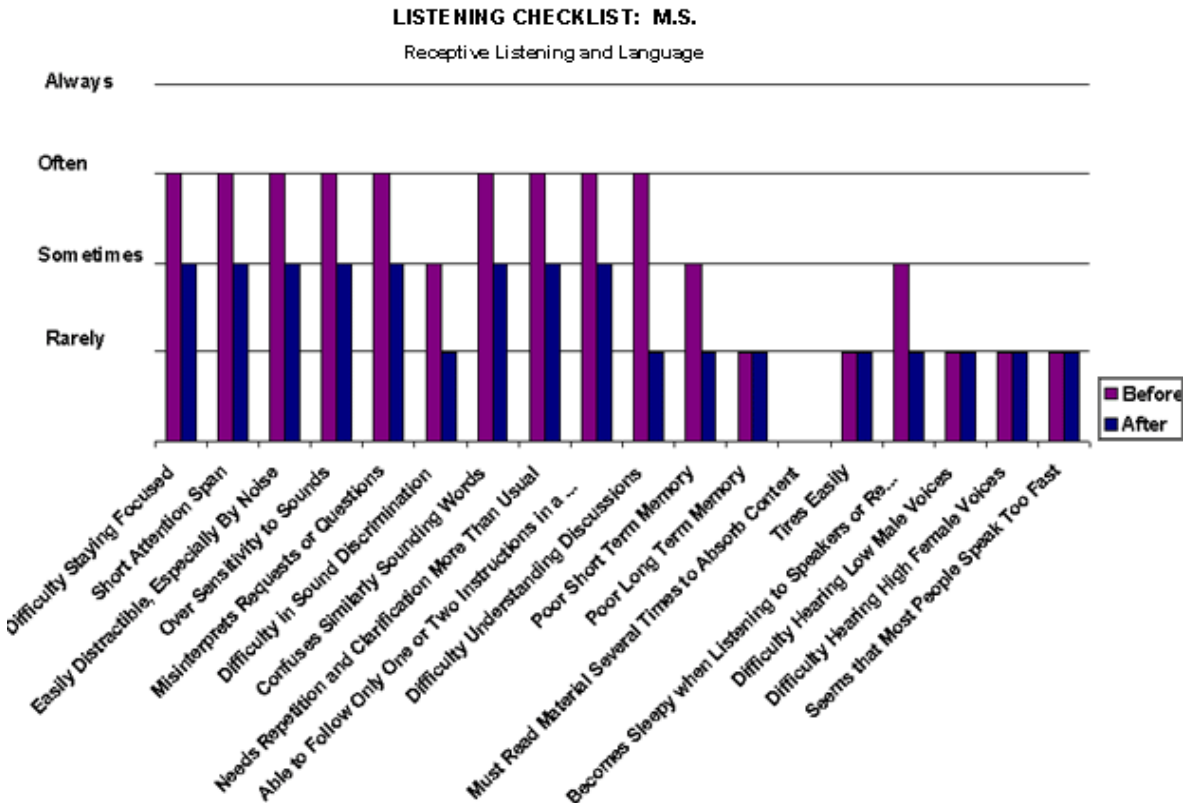
Home video footage was taken by his caregiver and consisted of three songs, 1st, 3rd, and 5th (last). It was observed that M.S. was experiencing the cumulative impact of the sensory stimuli (visual, auditory and tactile) and his response (increased anxiety, rocking, covered eyes, and covered ears). He occasionally participated with either the words of the songs or the actions associate with songs but not with both. He seemed to be more engaged with the costumes or the props for each song rather than engage and participate in the musical program. M.S. also demonstrated limited eye contact and attention to the music leader and or parents during the duration of the program.

CAREGIVER JOURNAL ENTRIES: DURING THE FIRST CYCLE

Week 1	Immediately sensitive to loudness of voices, TV, etc. Quick to cry. Refused to listen to tracks 10-12.
Week 2	Very defiant and a cry baby. Very emotional day at school, very sensitive at home.
Week 3	Manic. Difficult to manage.
Week 4	Hyper
Week 5	Said he was done before it was over. Hard to get his attention. Hungry. Scattered with his focus. Hungry. Sleeping longer. Hyper during listening times. Big time cry baby.
Week 6	More complex speech and thought processes. Clearer expression of ideas. More verbal but more distractible.
Week 7	Distractible, not sleeping well.
Week 8	Alternating between active and talkative to sad and withdrawn; very determined in how he thinks things should be. Other children and adults better able to understand him.
Week 9	Better verbalizing of his moods and how he feels. Increased understanding of those talking to him (peers and adults). Complex unscripted pretend play (1st time ever!).
Week 10	Seems to be more aware of feelings and is more secure in expressing them. More calm periods more often. Seems to be more aware of feelings and is more secure in expressing them. More calm periods more often.

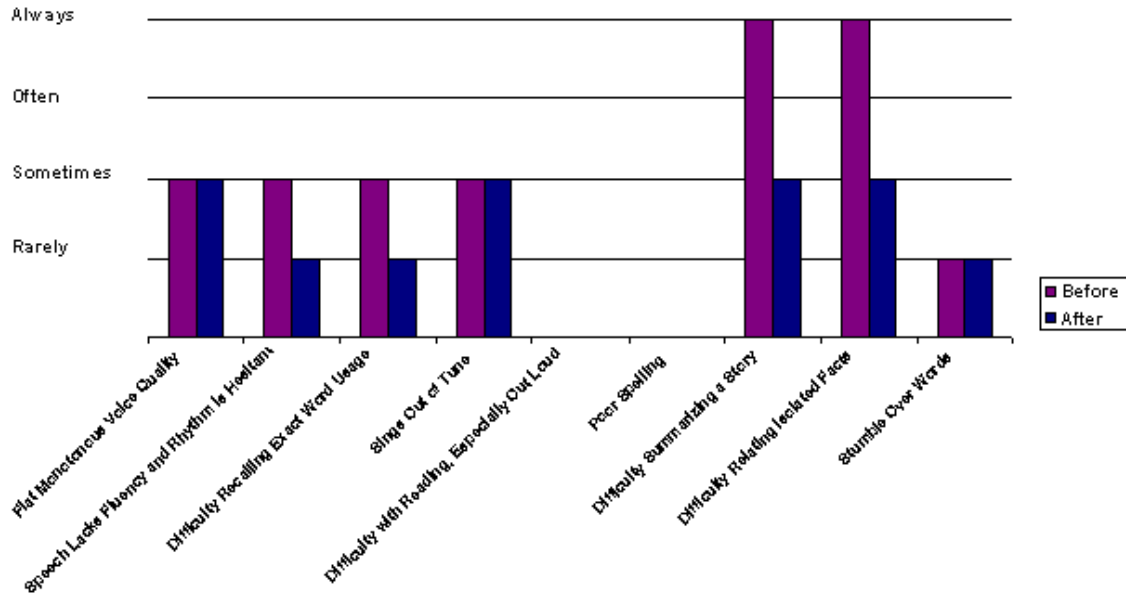
PARENT PERCEPTIONS OF PRE AND POST TLP USING THE LISTENING CHECKLIST

Parent perceptions of pre and post TLP using the Listening Checklist



**LISTENING CHECKLIST: M.S.**

Expressive Listening and Language



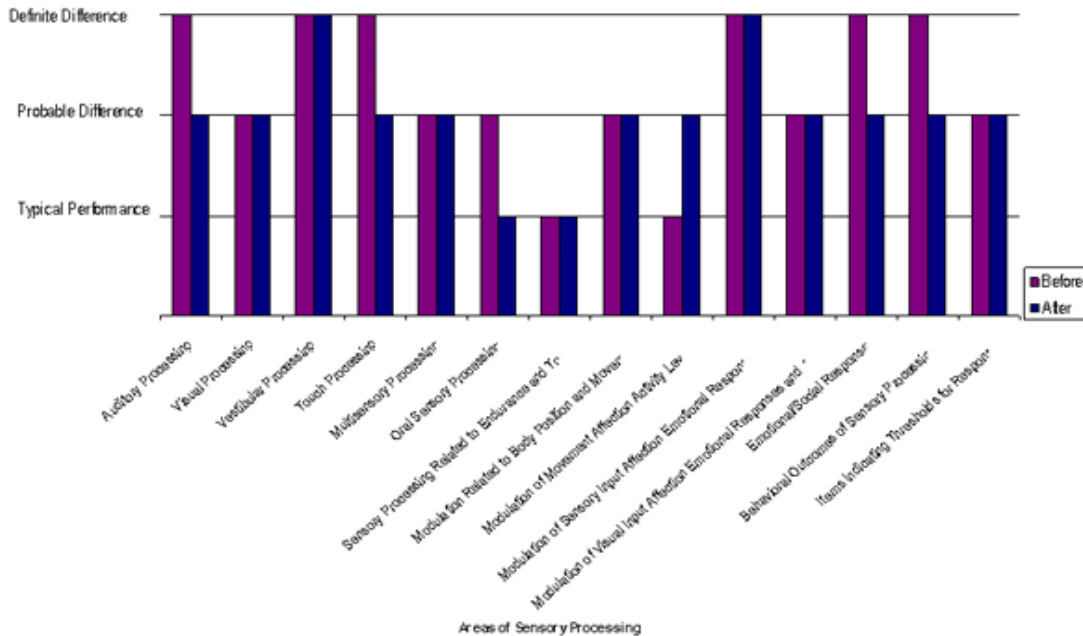
M.S. demonstrated improvements in the area's of receptive and expressive listening based upon the TLP Listening Checklist. Please refer to the charts for specific areas and rate of improvement based upon caregiver responses.

**PARENT PERCEPTIONS OF CHANGES RELATED TO SENSORY PROCESSING USING THE SENSORY PROFILE:**

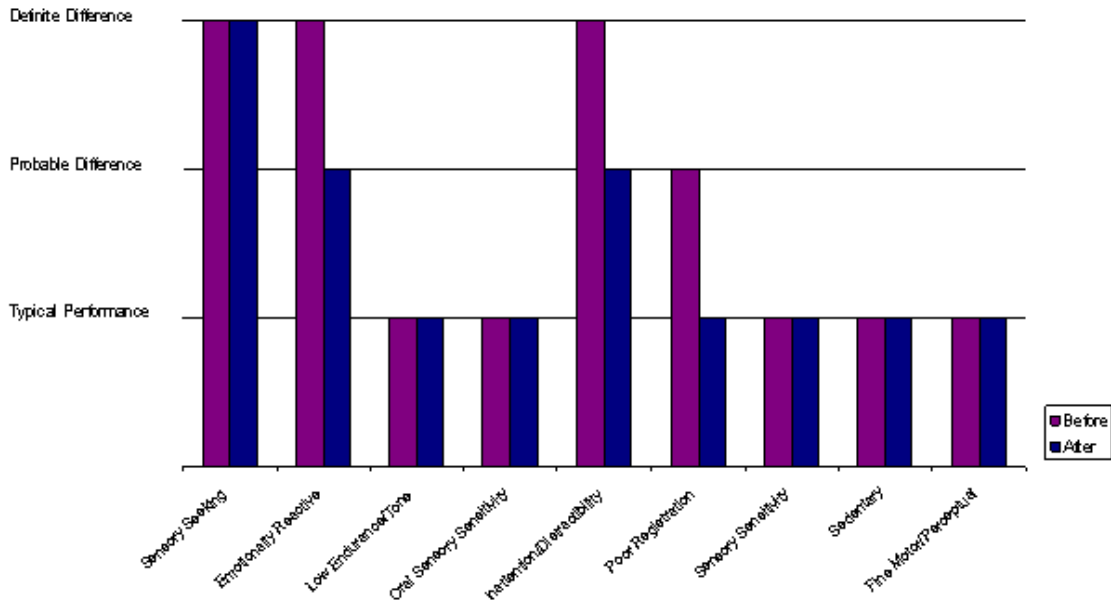
**Parent perceptions of changes related to Sensory Processing using the Sensory Profile:**

**Sensory Profile: MS.**

Section Summary



**Sensory Profile: M.S.**  
Factor Summary



**SUMMARY OF SENSORY PROFILE:**

It is important to note that the Sensory Profile (SP) is a caregiver judgment based questionnaire that is used more typically as a part of completing an overall diagnosis of a Sensory Processing Disorder. However, it was used to compare M.S.'s caregiver pre and post TLP sensory processing status. It may be argued that as parents and caregivers become more educated and sensory savvy kids would typically score worse on the SP because they tend to scrutinize their children's sensory processing skills more intensely.

Improvements were noted in the overall sensory summary section in the following areas: auditory processing (hypersensitivity/discrimination), touch processing (maybe related to an issue of modulating his arousal to a more normal level), oral sensory processing (similar to tactile), emotional/social responses, behavioral outcomes (decrease in emotional and physical responses to noxious stimuli), emotionally reactive, inattention/distractibility, and poor registration.

Prior to TLP, M.S. seemed to have a low sensory threshold, meaning that his "sensory cup" would overflow early and quickly during the day and once he hit his threshold he would either react with negative behaviors or withdraw and shut down. From a sensory processing standpoint his sensory cup is much larger and can hold more of the cumulative sensory input as well as when it overflows he can modulate or control how much he attends and acts on the sensory stimuli.

**POST TLP SPRING PROGRAM 6/06:**

Home video footage taken by caregivers consisted of three songs, 1st, 5th, and 8th song of a spring preschool program. Throughout the duration of the program M.S. demonstrated improved sensory processing as evidenced by his ability to tolerate the multi-sensory experiences (visual, auditory, and tactile sensory input) as well as attention and engagement. He demonstrated increased eye contact with his teacher/music leader caregiver's (attempting to gain visual attention of parents and waving to parents) as well as interaction with peers. M.S. also demonstrated increased involvement and motor coordination with songs and actions associated to the music.

#### EXCERPTS FROM M.S.'S CAREGIVER'S RESPONSE TO TLP:

"I feel that the changes effected by The Listening Program in M.S. are nothing short of a miracle. My husband refers to the program as his "magical music".

"Toward the end of the first cycle, Michael burst into tears one day and when asked, he said he was crying because he was sad and he was sad because I made him have "quiet time" (non-nap time). I cried for joy at his ability to put those concepts together. He experienced sadness, knew what caused it, and could express that to me."

"Before starting TLP, children M.S.'s age had a difficult time playing with him because he could not follow their directions in play. He couldn't comprehend the flow and their directions of play. He would lose focus and/or patience with what they were doing and wander off and/or become emotional. Now he will play for hours without mishap or misunderstanding and enjoy other children his age."

#### EXCERPTS FROM M.S.'S SPEECH THERAPIST'S RESPONSE TO TLP:

"Since M.S.'s completion of TLP, I have seen tremendous difference in his overall receptive and expressive language skills along with his social skills."

"He is able to complete tasks with minimal cueing and remain engaged in tasks for longer periods of time. He can also complete multi-step directions without assistance."

"I feel this program has helped him make greater leaps and bounds in his overall developmental progress then if he were to just have speech and occupational therapy interventions alone."

#### CURRENT STATUS

M.S. continues to require skilled occupational therapy services using a Sensory Integrative therapy approach to help improve his participation and performance in valued, daily occupations. However, at this time he requires intervention with less intensity and frequency within an outpatient rehabilitation setting.

#### *Editors Note*

M.S.'s Provider Bryan Gee presented this case study at the 2006 ABT International Conference including the referenced video footage. The presentation is available on DVD from ABT.