



DEVELOPMENTAL FX  
The Developmental & Fragile X Resource Centre  
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## The Sensory Diet Concept and Use of the Sensory Diet Template

### **What Is a Sensory Diet?**

A sensory diet is a treatment strategy used within the framework of occupational therapy to address two particular problems: sensory defensiveness and difficulties maintaining appropriate states of arousal. Sensory defensiveness is the tendency to respond in a negative or avoidant manner to sensory input; even normal sensations such as the feeling of clothing on the skin, water at bath time or lights in a gymnasium can be sources of negative overstimulation. When this presents in a pattern of over-responsivity coupled with behavioral response of avoidance or agitation, it is called sensory defensiveness.

Arousal difficulties refer to the tendency of a person's nervous system to maintain an optimum level of activation for the context/task at hand; if it is time to sleep, optimal arousal is low to match the sleep state. Alternatively, if the task is a college lecture, then arousal should be alert and focused without a lot of body activity, in contrast to the alert, focused and active body used during a sporting activity. Because individuals with FXS often struggle with sensory defensiveness and poor arousal modulation (with hyper arousal being a predominant feature of the condition), the sensory diet approach is ideally suited to address these particular needs.

The concept of the sensory diet was originated by Patricia Wilbarger, MA, OTR. It is an occupational therapy intervention strategy which consists of a carefully planned program of specific sensory-motor activities that is scheduled according to each child's individual needs (Wilbarger & Wilbarger, 2002). It also takes into consideration each family's schedule, preferences, and resources.

A sensory diet can help maintain an age-appropriate level of attention for optimal function as well as be used to reduce sensory defensiveness. Like a diet designed to meet an individual's nutritional needs, a sensory diet consists of specific elements designed to meet the child's sensory integration needs. The sensory diet is based on the notion that controlled sensory input can affect one's functional abilities. Martin (1991) states in *Principles of Neuroscience*:

“Sensory systems are not only our means for perceiving the external world, but are also essential to maintaining arousal, forming our body image and regulating movement.”

Wilbarger & Wilbarger's (2000) comprehensive approach to treating sensory defensiveness includes education and awareness, a sensory diet, and other professional treatment techniques. One such technique is called either the “Wilbarger Protocol” or

“Therapressure” technique, which uses deep pressure to certain parts of the body, followed a series of joint compressions that provide the sensory input of proprioception. Proprioception refers to sensory input that activates muscle and joint receptors, providing information to the brain about those muscles and joints (what are they doing, how are they moving). Most important from an arousal standpoint, proprioceptive input releases chemicals in the brain that foster organized modulation or arousal functions.

The Wilbargers also suggest a specific protocol, called the Wilbarger Oral Tactile Technique, which addresses oral sensory defensiveness. Oral sensory defensiveness manifests in aversive, negative responses to oral sensations and is usually seen in feeding and speech-related behavioral concerns. Either Therapressure or the Oral Tactile Technique are used in combination with an overall sensory diet. The sensory diet provides the structure which coordinates sensory motor activity into the life routine of the individual for whom it is designed. It is critical that these protocols not be used in isolation and that the overall program be initiated and monitored by an appropriately trained occupational therapist.

A sensory diet is best designed by the family and therapist together. The therapist utilizes direct treatment time to learn the individual child’s “formula” for attaining and maintaining appropriate sensory reactivity and arousal modulation. The therapist takes this information, and together with what she or he knows about the family’s schedule and resources, designs a schedule of sensory supports that comprises the sensory diet. A sensory diet typically contains the following elements:

- A schedule of the key events in the individual’s day (e.g. wake up, eat breakfast, get ready for day, bus to school, etc.). These serve as the guide for scheduling the specific sensory diet activities that follow.
- Sensory Diet Activities
- Transition Strategy/Routines for Success

In order to design a sensory diet, the therapist must be knowledgeable in three areas

- 1) sensory integration principles and how sensory motor activity influences function
- 2) how the individual functions across his or her day and what the goal of the sensory diet is
- 3) how to implement a structured schedule across the environments, people and contexts involved in the person’s daily life.

Sensory diet activities are adapted for each individual but are based on sound neuroscience principles about how the brain takes in and makes use of sensory input to create optimal states of arousal and performance. An occupational therapist trained in sensory integration has the expertise to know how to use neural principles (such as “adaptive response”—how each sensation is processed and what it produces neurally) to design an appropriate sensory diet.

Neuroscience evidence suggests that several key types of sensory input have the qualities required to produce these effects. These inputs include: touch, pressure, movement, respiration, listening, looking, tasting, and smelling. It is not these sensations per se that provide the power to shift the defensiveness or the hyperarousal. Rather, it is when the therapist selects the input based on 1) how it can provide an adaptive response and 2) how it works best for each individual.

Finally, the therapist chooses the activities based on what the individual seeks out, enjoys, and has access to, along with those which provide the most impact related to the goal and the person's schedule.

The sensory diet allows you to anticipate the events of the day (transitions) that need extra sensory support. Typically, these supports are set up in routines to ease transitions. For example, if a child is hyperaroused going to music class, the transition routine could include carrying a weighted basket of musical instruments to the class. This visual of the musical instruments helps the child to prepare for what is coming next, which can ease anxiety. In addition, the proprioceptive activity of carrying the weight should support lower arousal, easing the difficulty. The types of sensory input used in transition routines are similar to those generally used in a sensory diet.

Putting all of these components into a set weekly schedule produces a structured sensory diet.

We know that difficulties with sensory integration can have a profound effect on a child's participation in everyday childhood "occupations"—play, school and family activities. Collaboration between the therapist, teacher and parents is the most efficient way to understand the child's behavior and unique sensory needs. The “therapist-teacher-parent team” must work together to successfully implement a sensory diet and support the child's performance in roles and occupations across multiple environments.

### **Use of the Sensory Diet Template**

The sensory diet typically is comprised of:

- A Schedule of the Key Events in the individual's day
  - serve as the guide for when to introduce the specific sensory diet activity
- Sensory Diet Activities
  - The sensory diet activities are designed for the individual but are based on sound neuroscience principles about how the brain takes in and makes use of sensory input to create optimal states of arousal and performance. The neuroscience evidence suggests that several key types of sensory input have the qualities required to produce these effects. The key types of sensory input include input to the touch, pressure, muscle and joint receptors (tactile and proprioceptors), movement input, oral tactile/proprioceptive input, respiration, and auditory/rhythm input. An occupational therapist trained in sensory integration has the expertise to know how to use these neural principles to design an appropriate sensory diet.
- Transition Strategy/Routines for Success
  - The sensory diet allows you to anticipate the events of the day (transitions) that need extra sensory support. Typically, these sensory supports are set up in routines to ease the transition. The types of sensory input are similar to those in the sensory diet activities.

# Sensory Diet Baseline Activities

Name:

Date:

Notes/Other:

Time	Key Events in Day	Sensory Diet Activities in Place in Daily Routine	Activities provided due to need: note Antecedent and the Activities Provided
	Wake up		
	Breakfast		
	Lunch		
	Dinner		
	Bedtime		

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## **Sensory Diet Suggested Activities**

This handout is intended for use as a guide for activities used in a sensory diet. The rationale and references supporting these activities are complex, and can be explained to you by your occupational therapist. Correct implementation of these activities should be done under the direction of a registered occupational therapist. Please note that there are many different activities that can be used. The list below provides some basic ideas that have worked for individuals in our clinic.

### **Pressure input:**

Deep pressure input through the muscles, joints and skin are some of the safest and most effective organizing inputs.

- swaddling or wrapping in blankets
- pillows to nestle, wrestle and cuddle in, use a variety of sizes and textures, weighted blankets, weighted or inflatable vests or cuffs at wrists/ankles
- wearing ace wraps on arms, legs, trunk; wearing spandex under garments or neoprene gloves, shorts, headbands
- wedged into a barrel with pillows
- Use of a gymnastic ball to roll over a person with careful pressure

**Heavy work** is active pressure type input to the muscles and joints through pushing, pulling, lifting, carrying, and "working"!

- vacuuming, carrying the laundry, carrying any load, mowing the lawn
- pushing the grocery cart, pulling a wagon, riding a bike
- stacking chairs, scrubbing tables
- push-ups or pushing against a wall
- climbing, resistance play
- feet on bungee cord at a desk
- carrying a weighted back pack

**Heavy work in the hands** is an effective technique that can be used easily in multiple environments. This is characterized as "fidget and focus".

- having access to one or preferable more small manipulative toys with which to simply "fidget"
- play dough/therapy putty work
- attaching a rubber tubing to back pack strap to pull on as needed
- attaching a telephone cord type key chain to belt loop to pull on or "fidget"

**Oral motor** inputs can be organizing when they engage the oral proprioceptors.

- chewing on fruit leather, licorice, pretzels, gum, or non food items such as aquarium tubing
- sucking through resistive, long, or "silly" straws for liquids or other play
- blowing blow toys, bubbles, or cotton balls in play

### **Breath work**

- facilitating breath through sucking and blowing activities
- Teaching how to take a deep breath as a means of stopping and calming

**Movement** that is rhythmic and in a linear manner is typically calming

- porch or park swings
- rocking chair, or rocking in a lap
- use of a therapy swing or therapy ball as directed by therapist

**Vibration** can be a powerful input to affect organization

- vibrating pillows, electric massagers
- electric toothbrush
- making vibrating sounds, such as "mmmmm"
- feeling vibration of music from a speaker
- many musical instruments, especially electric or mouth blown create vibration (harmonica, drum machine, etc.)

**Rhythm** is typically a favorite calming input.

- let music be a part of daily routine. Have a bath song, a dressing song, a meal time song, etc. It helps with attention and sequencing, and can build independence -simply sing about activities as they are happening
- teach concepts with music and rhythm
- active participation with a drum, auto harp, electrical music devices, harp, etc. -listening to rhythm and quieting music of many varieties, such as environmental sounds, natural heart sounds, classical music, lullaby tapes, etc., and having these available in the car, at home, work and school

**Quiet time** in a small place needs to be taught, valued and practiced as a life skill in every environment

- create a hide out or comfy place for each environment
- make fidget and oral inputs and music available in this space
- books for reading /music to listen to

**Community based activities** incorporated into daily life facilitates a balanced, calm life style.

- hippo therapy (horseback riding with a therapeutic emphasis)
- recreation centers for swimming, yoga classes and other leisure opportunities
- martial arts (carefully selected)
- domestic duties, baking, laundry, stacking wood, yard work

Compiled by Lois Hickman, MS OTR and Tracy Murnan Stackhouse, OTR and Sarah K. Scharfenaker, MA, CCC-SLP from numerous sources.

**SENSORY DIET TEMPLATE-EXAMPLE**

**PATIENT'S NAME: James**

<b>Time</b>	<b>Key events in day</b>	<b>Sensory Diet Activities</b>	<b>Transition Strategy</b>
	Wake up	Wake up routine w/ pressure input “pressure sandwich”, or joint traction while singing	
	Breakfast	Oral pressure protocol; Oral Supports/heavy work	Review Picture Schedule of day
	Play time-gross motor time	Heavy work and play (climbing, pillow play)-heavy work “chores” such as carrying items, cleaning tables (scrubbing work!), etc.	Use Picture Schedule
	Table top or play room time	Wear weighted vest	
	Play time	Sensory social routine with pressure/traction/compression input	Use Picture Schedule
	Lunch	Oral pressure protocol before lunch with oral supports/heavy work	
		Pressure play (with rhythm and music/singing if wish) and use of weighted blanket if he accepts	Transition song in car to school; weighted vest over lap in car
	Arrive at school	Sensory social greeting routine with pressure input	Use Picture Schedule
	Center time at school	Wear weighted vest	
	Play time-gross motor time	Heavy work and play (climbing, pillow play)-heavy work “chores” such as carrying items, cleaning tables (scrubbing work!), etc.	
	Transition to home		Shoveling/heavy work activity, then into house; Use Picture Schedule
	Play time	Heavy work with play (climbing, pillow play)	
	Transition to quiet play time	Squeeze and hug time w/mom or dad; wear weighted vest during play time	
	Dinner	Oral pressure protocol before dinner with oral supports/heavy work	Use Picture Schedule
	Family Time	Play Wrestle/pressure play time	
	Bedtime	Bedtime routine; pressure rhythm and weighted blanket	Use Social Story



## References

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