



# A Guide to Conquering Eating, Feeding and Mealtime Challenges

For Children with Sensory Processing Disorder

by  
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## About A. Jean Ayres, PhD, OTR, FAOTA, Founder of Sensory Integration Theory

A. Jean Ayres, occupational therapist, developed the sensory integration frame of reference. Dr. Ayres was born in 1920 in Visalia, California. Growing up she struggled with everyday sensations that interrupted and impacted her ability to learn like her peers. Due to her difficult childhood, Ayres was determined to study the reasons why children like her had such difficulty with everyday tasks. She obtained a master's degree in occupational therapy and a doctorate in educational psychology from the University of Southern California. Dr. Ayres later completed postdoctoral work at UCLA's Brain Research Institute where she began to develop her theory of sensory integration. Through her work, Dr. Ayres found children with sensory integration dysfunction had a neural disorder that affected their ability to interpret and process sensory information, such as touch and movement. From this discovery, she developed assessment tools such as the Southern California Sensory Integration Tests (SCSIT) and later the Sensory Integration and Praxis Tests (SIPT) that helped occupational therapists identify this disorder in children. She created equipment and treatment techniques, which now serve as the foundation to sensory integration intervention. This novel intervention approach changed the way occupational therapists treat children with sensory and motor challenges. Dr. Ayres believed therapy should emphasize the power of sensations, be child-directed and be play-based to make the neural changes necessary to improve the child's ability to function in everyday life. Throughout the past decades, Ayres' work has been the foundation for increased understanding of the relationship of sensory processing, motor development and behavior in children. Her theory and terminology are used by many professions though they remain rooted in occupational therapy.

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### **A GUIDE TO CONQUERING EATING, FEEDING AND MEALTIME CHALLENGES FOR CHILDREN WITH SENSORY PROCESSING DISORDER**

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PUBLISHED BY: The FOCUS Institute and OTA the Koomar Center,  
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## How Eating and Feeding and Mealtime Relate to Sensory Integration

### We all have 7 senses that we use in our everyday lives:

We use our sense of **SIGHT** to look at our plate of food, our utensils, and who is sitting with us.

We use our sense of **SMELL** to smell the flavors of our food.

We use our sense of **TASTE** to decide if our food is salty, sweet, sour or bitter.

We use our sense of **HEARING** to listen to a meal cooking and others talking around the table.

We use our sense of **TOUCH** to feel if our food is hot or cold, crunchy or soft.

Our **VESTIBULAR** sense is the sense of moving, and maintaining an upright position.

We use our **VESTIBULAR** sense to know which way is up or down, or how fast or slow we move. The vestibular system has the greatest impact on daily function. It affects posture, balance, movement, coordination, attention and arousal. These things all help a child stay in his seat at the table and remain engaged throughout meals.

Our **PROPRIOCEPTIVE** sense is the sense of muscles working in our bodies and understanding the positioning of our muscles in comparison to our own body and other objects.

We use our **PROPRIOCEPTIVE** sense to know where our bodies are in space and how to generate coordinated movements to successfully execute tasks. Movements which support our proprioception sense include: climbing, crashing, bouncing, crawling and other heavy muscle work activities. We can see our proprioceptive sense when bringing food to our mouth, and knowing how much food is in the mouth.

Without conscious thought, we integrate each of these sensations in our bodies all the time. Sometimes children have trouble successfully integrating information from their sensations into their daily lives.

- Some have difficulties **MODULATING** sensory input, meaning they may be oversensitive, defensive or unable to filter out sensations. Children who have difficulty modulating input may have food sensitivities or be picky eaters. Modulation directly effects one's arousal, attention and behavioral responses. A high level of arousal can lead to mealtime problems.
- Others have trouble **DISCRIMINATING** sensory inputs, meaning they may have difficulty perceiving specific qualities of sensations. This results in a child who has decreased awareness sensory inputs. Discrimination directly affects one's skill building, such as knowing where food is in the mouth or how to drink from a cup without spilling.
- The ability to plan and sequence the steps of these motor tasks, called **PRAXIS**, is dependent on effective sensory discrimination. Children with praxis problems may have difficulty coordinating how to scoop food, bring food to the mouth, move food in the mouth, or hold utensils.

## Occupational Therapy's Role in Eating, Feeding and Mealtime Success

Occupational Therapy practitioners (OTs) recognize how essential being able to eat and feed one's self is as a daily living skill. It is a crucial developmental milestone for children as well as a skill that has medical, social and emotional implications for children and their families.

Mealtime challenges often result in far reaching negative effects for the child, their family and others in their life. It may be difficult for a child to engage in food-related activities in meaningful settings, such as birthday parties and eating out at a restaurant.



### What is the difference between “feeding” and “eating”?

- Occupational Therapists define feeding as “setting up, arranging, and bringing food [or fluid] from the plate or cup to the mouth”. This includes manipulating utensils, management of food on the plate (cutting and scooping), and things like pouring juice or syrup. These skills require developed praxis and motor coordination.
- Eating refers to “keeping and manipulating food or fluid in the mouth and swallowing it (swallowing is moving food from the mouth to the stomach)” (AOTA, 2014). Oral motor skills and sensory sensitivities can impact eating.
- Children may have difficulty with one or both of these skills.

### What is the relationship between eating, feeding or mealtime challenges and sensory processing?

- Eating is one of the only tasks that a child does that requires the use of all seven senses. Integrating all of this information is complex!
- Sensory **modulation** challenges result in **over-sensitivities or defensiveness**. If a child is sensitive to tastes and textures, he may have limited food intake resulting in a restricted diet with limited nutrition. He may be sensitive to having food in and around the mouth, or be over-responsive to food smells and sounds, such as people eating. Sensory modulation challenges may lead to an increased arousal level, which can impact a child's ability to maintain their focus and behavior during mealtime.
- Decreased sensory **discrimination** can result in **decreased awareness** of food in and around the mouth. This may make it difficult for a child to be aware of where food is in their mouth which can limit their food preferences. It may also impact oral motor ability to use the tongue and lips effectively for eating. Postural control and praxis (motor) problems may result in difficulties sitting at a table, managing utensils or cutting up or scooping food.

## Patterns of Eating, Feeding and Mealtime Challenges

Occupational Therapists define six individualized eating, feeding and mealtime profiles based on a child's sensory difficulties.



Some children have challenges with multiple areas of sensory and motor functioning that impact eating and mealtime performance. This pattern is called a **Generalized Sensory and Motor Dysfunction**. Characteristics of this pattern are:

- Challenges stem from a combination of modulation, discrimination, postural and praxis difficulties
- Child may have extreme discomfort around sensory properties of food, difficulty maintaining position in chair, difficulty with chewing and utensil use
- Likely have challenges outside of mealtime as well, such as paying attention at school and processing sensory information in the community.



Some children only have problems with discrimination of sensory inputs that may affect their postural control, motor skills and or oral motor skills. This is pattern is called **Generalized Sensory Discrimination Dysfunction** and characteristics of this pattern are:

- Difficulty assuming and maintaining body position in chair
- Difficulty using and manipulating utensils
- Limited chewing patterns restricting food repertoire
- Difficulty with completion of activities of daily living such as dressing and bathing; engagement in social activities and sports; and negotiation of their everyday settings in a safe manner

Some children demonstrate over sensitivities to multiple types of sensory stimuli. This pattern is called **Generalized Sensory Defensiveness** and characteristics are:

- Extreme discomfort with everyday sensory experiences such as focusing in a busy environment and not wanting to be touched
- Negative responses such as fear or discomfort with smell, taste or texture of foods.
- Difficulty with attention, rigidity around foods, and strong behavioral responses such as outbursts at the table

Some children demonstrate sensory sensitivities that may impact a child's oral motor structures (lips, cheeks, tongue) but may not impact the rest of the body. This pattern is called **Oral Sensory Defensiveness** and characteristics are:

- Extreme discomfort with the taste, texture and smell of foods resulting in avoidance of these experiences
- Selectivity of food based on their defensiveness (i.e. needing food to be the same brand, prepared the same way)
- Strong protective reactions to exposure to certain foods or smells (i.e. gagging, throwing up).

Some children demonstrate sensory discrimination problems that may impact a child's oral motor structures but not the rest of the body. This pattern is called **Oral Sensory Discrimination Based Oral Motor Difficulties** and characteristics are:

- Delayed oral motor skills
- Often messy eaters; exhibit immature chewing patterns; select food based on oral motor demands
- Sensitivity to tastes and smells are also possible, which can contribute to a child's eating preferences
- May be grazers, eating small amounts of food many times throughout the day, often due to fatigue from chewing



Some children have difficulty with both oral defensiveness and sensory discrimination in oral structures. This pattern is called **Combined Oral Sensory Defensiveness/ Sensory Discrimination Based Oral Motor Difficulties** and characteristics are:

- Combination of the two patterns listed above
- As babies, these children do not like the feeling of objects in their mouth. This leads to a lack of exploration of the world through the mouth, which is typical for a baby's development. This lack of exploration leads children to later have a hard time understanding the qualities of foods (smooth, crunchy, or mixed texture).
- Children may exhibit extreme discomfort (sensory defensiveness) around the sensory properties of food as well as the related oral motor control problems

# Tips & Tricks to Support Mealtime Success at Home

## General Sensory Tips

Every child's sensory systems are different and have differing thresholds. In general, it is beneficial for a child to have opportunities to engage with their sensory environment in an emotionally safe manner. Here are some general strategies to address overall sensory function, which can be done outside of mealtime.

- Provide exciting environments with many things to look at and new sounds to hear.
- Allow them to play on various tactile surfaces, like grass and sand.
- For a child who is overly sensitive to any sensory stimuli, try to “turn down the volume” of that sensation. For example, if a child is very distracted by visual information, give them a cozy space in your house (such as a tent or fort) that blocks out overwhelming visual inputs.
- If a child is bothered by sound, allow them to try noise cancelling headphones in a busy environment.
- Engaging in activities that decrease sensitivity can also be beneficial, if the child is ready. For example, if your child is sensitive to getting their hands messy, providing opportunity for play with a variety of tactile media like sand, shaving cream or dry beans can increase their tolerance over time.
- For a child with decreased awareness of sensory stimuli in their environment, try to “turn up the volume” of that sensation.
- Provide your child with a variety of movement opportunities (jumping, sliding, running, crawling) for the development of their postural muscles. Postural control is necessary for sitting at the table.



## Mealtime Tips



### Strategies for Smoother Mealtimes

- Getting into a predictable mealtime routine with children helps them know what to expect.
- Do not force a child to eat anything. Creating positive interactions with food and pleasant experiences at the table are important in helping a child feel safe. Feeling safe is essential for a child to take risks, such as trying something new.
- Allow children to play with their food and get messy! Children can learn about new foods using all of their senses. If playing with food at the dinner table is becoming a problem, set up a “food play time,” for food exploration.
- It is helpful for parents to use rich, descriptive language when a child is exploring new foods, rather than just labeling them as “yummy” or “yucky”. Describing sensory qualities to the child (crunchy, smooth, wet, cold, sweet etc.) helps a child know what to expect, before they even get to the tasting part!
- If a child shows interest in helping preparing a meal or snack, get them involved with shopping for and preparing food.
- Limit distractions as much as possible while eating. Turning off the TV, changing a child’s chair position so it faces less visual distractions, and removing toys from the table helps the child focus on the goal of eating.

# How Occupational Therapy Promotes Mealtime Success

## Occupational therapy addresses difficulties in the following areas

### Sensory Processing Skills

- Therapy provides rich, whole-body sensory experiences that can decrease tactile defensiveness over time, increasing tolerance for a variety of food textures.
- Oral tactile discrimination improves through sensory stimulation, using a variety of oral toys and activities. This leads to an increased ability to manipulate and clear food in the mouth.

### Oral Motor Skills

- Using a variety of therapeutic oral games and activities, a child's jaw can become stronger in order to bite and chew a variety of food textures.
- Occupational therapy may target increased lip closure on cups and spoons with mouth games and toys for the mouth.
- Addresses tongue control, which is necessary for manipulating food within the mouth.
- Once oral foundations are addressed, focuses on promoting eating and drinking skills.

### Posture, Praxis and Motor Skill

- Provides whole-body movements such as crawling and climbing improve postural stability, helping a child sit at a table during a meal.
- Children may work on motor planning skills in therapy to cut, spear and scoop food with utensils.



There are many eating and feeding programs established to help children who are picky eaters. Some programs are stand alone and may be used by other disciplines than occupational therapy. Some OT's integrate strategies from several of these programs into their treatment approach. You may wish to explore which program or combination is best for your child. Some examples of common programs follow.

- **The SOS Approach (Sequential Oral Sensory):** Assesses and addresses feeding issues
- **Beckman Oral Motor Protocol:** Addresses oral motor skills
- **Mealtime Notions with Marsha Dunn Klein:** Targeting mealtime challenges
- **Applied Behavior Analysis (ABA):** Aims to change a child's behavior through identifying antecedent, behaviors and consequences.
- **FOCUS Program:** Unlike other programs, the FOCUS approach addresses foundational sensory processing and motor skills. Therapists using the FOCUS approach may draw on knowledge and strategies from other programs that they have training in while still following the phases of the FOCUS Program.

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## The FOCUS Program for Mealtime Success

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### Family-Centered, Oral Motor, Comprehensive, Underlying Issues Addressed, Sensorimotor



The FOCUS Program is a family-centered model and intervention program for feeding and oral motor challenges. It addresses an individual's sensory processing and motor skills with functional oral motor and feeding skills, and mealtime behaviors and participation.

- FOCUS assessment and treatment is selected specifically to meet the individual needs of each child and family.
- The FOCUS intervention program is a phase-based approach consisting of 6 stages. The phases progress from whole body awareness to the ability to eat in diverse functional environments.
- It is appropriate for individuals with a variety of diagnoses to improve eating and mealtime participation, including Sensory Processing Disorder (SPD), Autism Spectrum Disorder (ASD), Avoidant Restrictive Food Intake Disorder (ARFID), children who were born prematurely, tube fed individuals, and individuals with Trauma and Attachment Disorders.

### What will a FOCUS assessment look like?

Areas evaluated in a typical assessment are:

- **Whole body sensory and motor processing:** In a large gym space, the OT will observe how the child processes different types of sensory input and how they interact with their environment. They may use a combination of formal and informal assessment tools.
- **Oral motor structures and feeding:** (tongue, lips, and cheeks) and functions (swallowing, chewing, clearing of the mouth). The OT may ask parents to bring snacks from home that the child is familiar with, including something crunchy, smooth, chewy and a food that the child used to eat but doesn't anymore. Information will also be gathered about preferred foods to inform the therapist about a child's sensory processing oral motor skills
- **Mealtime behaviors:** The OT will make observations and gather information from parents about mealtime behaviors and the impact of the child's overall mealtime patterns the family.

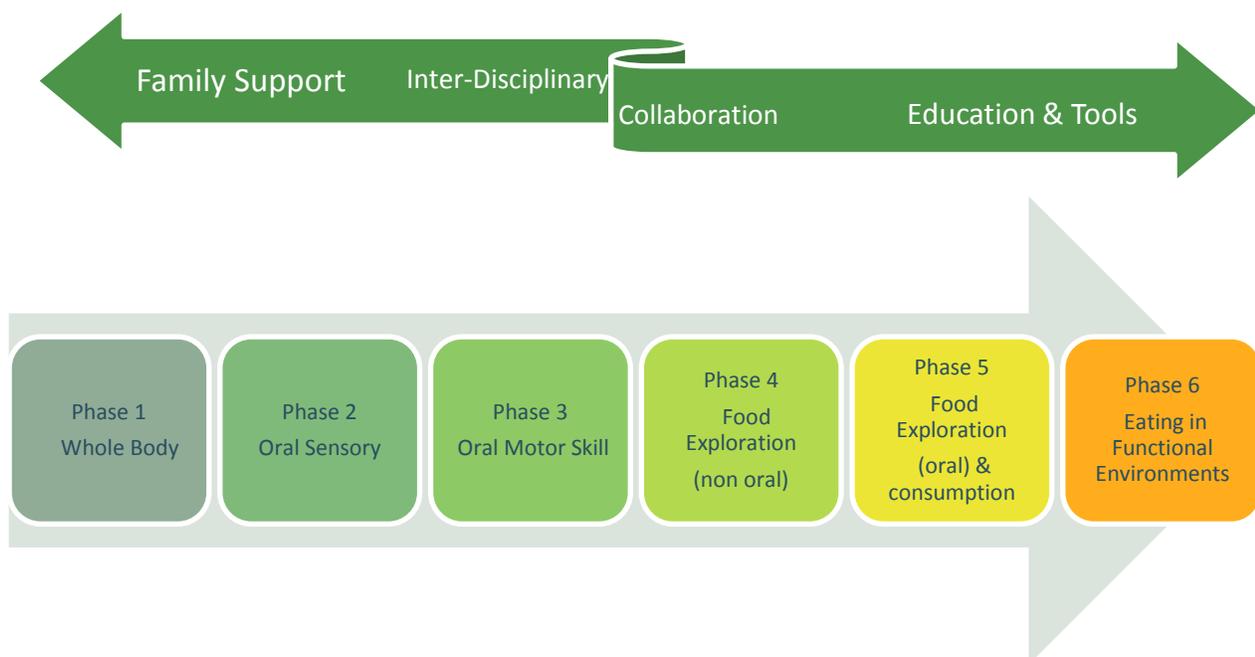
# Oral Motor, Feeding and Mealtime Intervention

Intervention approaches for oral motor and mealtime problems vary by profession and philosophical approach. Occupational therapy intervention for these problems that utilizes a sensory integration-based approach (such as that used in the FOCUS program) should typically include the following components and approaches.

## General Guidelines

- Based on a comprehensive assessment, the Occupational Therapist should identify which pattern or oral motor/mealtime dysfunction applies to the child and use a clinical reasoning approach to determine where to begin and how to progress intervention.
- The intervention should emphasize the child's comfort and feelings of safety and security.
- Family support and education, along with interdisciplinary collaboration, should occur throughout the process.
- Depending on the child's needs, foundational skills such as sensory modulation, discrimination, posture and respiration should be addressed before progressing to direct interventions involving oral motor skill development or food interactions.
- A variety of activities and techniques may be used throughout the intervention process.

This model from the FOCUS program illustrates the recommended progression of intervention activities



## Progression of Intervention

Intervention for oral motor, eating and mealtime problems develops through a natural progression of phases as illustrated in the preceding figure. Best-practice intervention for these problems will use assessment information and solid clinical reasoning to inform the clinician as to which phase of intervention the child should begin. Children may spend varying amounts of time in each phase. A brief description of the areas of function addressed in each of the phases follows.

### **Phase 1: Whole Body**

The purpose of this phase is to address whole body sensory and motor needs. Intervention is based on traditional sensory integration treatment strategies which involve whole body activities. Children in this phase may spend most, if not all, of their treatment session engaged in gross motor activity.

### **Phase 2: Oral Sensory**

The purpose of this phase is to decrease sensitivity of and/or improve sensory discrimination of oral structures (lips, tongue, cheeks). Activities in this phase will involve specific oral motor games to address the specific sensory modulation or discrimination problem of the child.

### **Phase 3: Oral Motor Skill**

The purpose of this phase is to strengthen and promote increased control and use of oral structures (lips, tongue, cheeks). These skills facilitate the child's ability to manipulate food in the mouth, bite, chew, and swallow food effectively.

### **Phase 4: Food Exploration (Non Oral)**

The purpose of this phase is to increase tolerance smells, tastes and textures of a variety of food as a precursor to putting foods in the mouth and consuming them for nutrition. Activities will typically involve food-based play, games and activities that require touching, looking at and smelling novel foods without bringing food to the mouth

### **Phase 5: Food Exploration (Oral & Consumption)**

The purpose of this phase is to increase tolerance for a wider repertoire of foods for increased consumption. Activities will typically involve food-based play in which child places novel foods in the mouth or eats food.

### **Phase 6: Eating in Functional Environments**

The purpose of this phase is to promote eating meals in the community (restaurants, school) and at home. Emphasis is on functional carryover and transfer of skills developed in previous phases.

## How do I know if my child would benefit from oral motor intervention?

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Your child should be considered for oral motor assessment and possible intervention if 3 or more of the following apply to their current eating and mealtime status.

- 1. Limited repertoire of foods are eaten on a regular basis
- 2. Inadequate nutrition and/or intake for growth
- 3. Gagging and/or choking on foods
- 4. Limited ability to chew or swallow foods
- 5. Difficulty being near less familiar foods (i.e. food being prepared, on table)
- 6. Difficulty eating foods of varying flavors, textures and smells
- 7. Is highly specific about foods he or she will eat – for example, needing a food prepared a certain way or only accepting a certain brand of a food
- 8. Difficulty using a straw, utensil and/or cup
- 9. Resistive behaviors and/or tantrums related to eating
- 10. Fatigues with eating (e.g., requires breaks, eats very small portions)
- 11. The pace of eating is too fast or too slow
- 12. Has sloppy eating habits
- 13. Stuffs mouth with food
- 14. Unable to sit at the table with the family during mealtime
- 15. Difficulty eating in different environments or with different people (i.e. restaurants, school)
- 16. You and/or your child experience heightened levels of stress around mealtime
- 17. Your child exhibits challenges during mealtime that impact their enjoyment of mealtime
- 18. Your child exhibits challenges during mealtime that impact the enjoyment of mealtime for other family members

## Resources

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### Books for Children

Just Take a Bite, Ernsberger, Lori; Stegen-Hanson, Tania (2004)

How to Teach Nutrition to Kids, Liakos Evers, C. (1995), 24 Carrot Press

Oral-Motor Activities for School-Aged Children, Mackie, E. (1996), LinguiSystems, Inc.

Mouth Madness Oral Motor Activities for Children, Orr, C. (1998), Therapy Skill Builders.

### Oral Motor Products

[www.arktherapeutic.com](http://www.arktherapeutic.com)

[www.talktoolstm.com](http://www.talktoolstm.com)

[www.theraproducts.com](http://www.theraproducts.com)

[www.therapyfunzone.net](http://www.therapyfunzone.net)

[www.therapro.com](http://www.therapro.com)

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Phalen, J. A. (2013). Managing feeding problems and feeding disorders. *Pediatr.Rev.*, 34, 549-557.

Suarez, M. A. (2015). Multicomponent treatment for food selectivity in children: description and case report. *Nutr.Clin.Pract.*, 30, 425-431.