



2023

## OCCUPATIONAL THERPAY'S ROLE WHEN TREATING PEDIATRIC FEEDING DISORDERS

Callie Vold

[How does access to this work benefit you? Let us know!](#)

Follow this and additional works at: <https://commons.und.edu/ot-grad>



Part of the [Occupational Therapy Commons](#)

---

### Recommended Citation

Vold, Callie, "OCCUPATIONAL THERPAY'S ROLE WHEN TREATING PEDIATRIC FEEDING DISORDERS" (2023). *Occupational Therapy Capstones*. 585.  
<https://commons.und.edu/ot-grad/585>

This Scholarly Project is brought to you for free and open access by the Department of Occupational Therapy at UND Scholarly Commons. It has been accepted for inclusion in Occupational Therapy Capstones by an authorized administrator of UND Scholarly Commons. For more information, please contact [und.common@library.und.edu](mailto:und.common@library.und.edu).

OCCUPATIONAL THERPAY'S ROLE WHEN TREATING PEDIATRIC FEEDING  
DISORDERS

By

Callie Vold, OTDS

Advisor: Dr. Julie Grabanski, PhD, OTR/L

A Scholarly Project

Submitted to the Occupational Therapy Department

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Occupational Therapy Doctorate

Grand Forks, North Dakota

May

2023

This scholarly project, submitted by Callie Vold in partial fulfillment of the requirement for the Degree of Occupational Therapy Doctorate from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

Julie Strubanski PhD, OTR/L

Faculty Advisor

04/14/2023

Date

## PERMISSION

Title: Occupational Therapy's Role When Treating Pediatric Feeding Disorders  
Department: Occupational Therapy  
Degree: Occupational Therapy Doctorate

In presenting this scholarly project in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised my project or, in their absence, by the Chairperson of the department of the Dean of the School of Graduate Studies. It is understood that any copying or publication or other use of this scholarly project or part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and the University of North Dakota in any scholarly use which may be made of any material in my scholarly project.

Callie Vold

4/14/2023

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	v
ABSTRACT.....	vi
CHAPTERS	
I.    INTRODUCTION.....	1
II.   LITERATURE REVIERW.....	4
III.  METHODOLOGY.....	14
IV.  PRODUCT.....	17
V.   SUMMARY.....	20
REFERENCES.....	23
APPENDIX.....	28

## **ACKNOWLEDGMENTS**

Through the process and creation of this scholarly project there are many people I would like to thank for the guidance and support. I would like to thank my advisor Dr. Julie Grabanski, Ph.D., OTR/L, encouragement, expertise, guidance, and feedback during the project.

Additionally, I would like to thank my site mentor Andrea Schlosser, OTR/L, for her flexibility, contribution to ideas and support. Further I would like to thank the rest of the staff at my site for their eagerness to help, share knowledge and support throughout the entire scholarly project.

Lastly, I would like to thank family and friends for the endless support they have provided me throughout this journey.

## ABSTRACT

Feeding and eating are required occupations that all humans must engage in to meet one of their most basic needs (AOTA, 2020; Maslow, 1943). While feeding and eating allows humans to meet their most basic physiological needs it also allows them to meet other needs of Maslow's Hierarchy along with engaging in valued occupations (AOTA, 2020; Maslow, 1943). Children with Pediatric Feeding Disorders (PFD) have difficulty with one or more areas of feeding which are medical, nutritional, feeding skill and/or psychosocial dysfunction (Fleet et al., 2022; Goday et al., 2019; Howe & Wang, 2013; Marshall et al., 2015; Sharp et al., 2017 & Volker et al., 2019). The purpose of *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* is to better understand the role of Occupational Therapy when treating PFD, other members of the treatment team and create home programming and educational resources for parents and caregivers to use outside of the therapy environment. The creation of the scholarly project including the home programming and educational resources were guided by an extensive literature review and completion of a needs assessment.

Occupational Therapy Practitioners address the feeding skills impacted when a child has PFD can include oral motor skills to manage food in mouth, expand the variety of foods in a child's diet and help with any environmental changes. The home programming and educational resources that were made include strengthening and improved coordination of the cheeks, tongue, lips and jaw, ways to make a safe and more fun eating environment, safe ergonomics when feeding and eating, and the differentiating between occupational therapy and speech therapy's role on the interprofessional treatment team for feeding and eating. Results of the scholarly project are an increase overall in food intake along with the variety of foods the child

will eat. It also decreased mealtime behaviors and the stress of parents/caregivers while increasing the parent/caregiver and child relationship.

It is estimated that 25% of typically developing children, 80% of children with intellectual disabilities and 40-70% of children with medical complexities experience PFD which can impact other areas of the child's life (Estrem et al., 2019; Saini et al., 2019; Sharp et al., 2017). A larger number experience PFD every day and their life is impacted in many different ways showing the importance of occupational therapy practitioners addressing it.



# Chapter I

## Introduction

### Problem Statement

Feeding and eating is an occupation everyone must participate in to meet their most basic needs as humans (Maslow, 1943). It is estimated that 25% of typically developing children, 80% of children with intellectual disabilities and 40-70% of children with medical complexities experience pediatric feeding disorders (PFD) (Estrem et al., 2019; Saini et al., 2019; Sharp et al., 2017). There are four areas that can be impacted when a child has PFD and they are medical, nutritional, feeding skill or psychosocial dysfunction, leading to an interprofessional team approach when treating children with PFD (Fleet et al., 2022; Goday et al., 2019; Howe & Wang, 2013; Marshall et al., 2015; Sharp et al., 2017 & Volker et al., 2021). Addressing and treating PFD is important as it can impact other areas of a child's life, occupations, and development (Maslow, 1943). The need determined was the creation of educational resources and home programming for parents and caregivers to use at home to help carry over what is targeted during therapy sessions into the child's most natural context.

### Purpose Statement

This scholarly project is *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* with the purpose of understanding Occupational Therapy's role when treating PFD along with creating resources for parents and caregivers of children with PFD. The area of PFD occupational therapy practitioners can address within their scope of practice are feeding skills which consist of being able to self-feed at an appropriate developmental level, having the oral motor skills to manage food in mouth, expand the variety of foods in the diet, and environmental

changes (AOTA, 2020). The home programming and educational resources created target strengthening and improved coordination of the cheeks, tongue, lips and jaw, ways to make a safe and more fun eating environment, safe ergonomics when feeding and eating, differentiating between occupational therapy's and speech therapy's role on the interprofessional team and developmental milestones.

Commonly used intervention approaches used in feeding therapy by occupational therapy practitioners include behavioral treatments, systematic desensitization, operational conditioning, Mealtime PREP, parent training, and parent role modeling (Caldwell et al., Carpenter & Garfickel, 2021; 2018; Draxten et al., 2014; Fleet et al., 2022; Howe & Wang et al., 2013; Novak & Honan, 2019; Sharp et al., 2017). These intervention approaches helped to create the activities on the home programming making the educational resources and home programming evidenced-based.

## **Theoretical Framework**

The creation of *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* was guided by The Ecology of Human Performance (EHP) model. EHP was chosen due to its unique focus on the context along with it being designed to use with an interprofessional team all to increase the child's performance range (Dunn, 2017). When treating a child with PFD an interprofessional team-based approach is needed due to the four different areas that can be impacted (Goday et al., 2019). Other professionals on the treatment team can include physician, gastrointestinal specialist, dietician, psychologist, speech therapist, nurse, and occupational therapist but it is not limited to just these (Fleet et al., 2022; Howe & Wang, 2013; Marshall et al., 2015; Sharp et al., 2017 & Volker et al., 2021).

## **Significance of Project**

Being successful in feeding and eating is important for helping to meet basic needs as humans physically, cognitively, socially, and emotionally along with engage in higher level occupations like play, school, social participation, health management and activities of daily living (ADLs) (Maslow, 1943; AOTA, 2020). Occupational therapy approaches treatment with a holistic, client-centered approach so goals and interventions are tailored to meet the need of each child and their family (Carpenter & Garfinkel, 2021). This client-centered and holistic approach allows occupational therapy practitioners to better navigate the goals and need of each client and their family, as PFD does not just impact that child but also parents, caregivers, and siblings (Caldwell et al., 2022; Carpenter & Garfinkel, 2021; Johnson et al., 2019). Occupational therapy is an integral part of the interprofessional team for children with PFD when targeting feeding skills.

## **Chapter II**

### **Literature Review**

#### **Introduction**

Pediatric Feeding Disorder (PFD) occurs when children have impaired oral intake compared to what is appropriate for their age and is due to medical, nutritional, feeding skill, or psychosocial dysfunction (Goday et al., 2019). As previously stated, there are four areas of dysfunction helping to magnify the complexity of feeding and all the different professions that can be a part of an interprofessional team when treating a child with PFD. It has been estimated that 25% of typically developing children, 80% of children with intellectual disabilities, and 40-70% of children with other medical complexities experience feeding difficulties (Estrem et al., 2019; Saini et al., 2019; Sharp et al., 2017). Occupational therapy plays a unique role in PFD by addressing feeding skills needed to engage and participate in the occupation of feeding. The goal of this scholarly project is to create home programming and educational resources for children and parents/caregivers of children in feeding therapy. Home programming will help to offer more consistency in therapy, along with education of parents and caregivers that can be carried over to the child's most natural context. With this goal in mind, it will be integral to understand what the best interventions are for children in feeding therapy with occupational therapy and how they can be carried out both in therapy sessions and their most natural context(s) such as home, daycare or school to allow skills to develop.

#### **Importance of Feeding Therapy**

Feeding is classified as an activity of daily living by the American Occupational Therapy Association (AOTA) and includes a setup or arrangement of the food or drink along with

bringing it from the plate, cup bowl, etc. to the mouth (AOTA, 2020). Eating and swallowing can also be addressed during feeding therapy and are also classified as ADLs by AOTA (2020). Eating is the act of keeping and manipulating food in the mouth and swallowing is moving the food from the mouth to the stomach (AOTA, 2020). When a child is having difficulties with feeding, eating, or swallowing, ADLs are not the only occupation impacted. Other areas of occupation that can be impacted include social participation, health management (physical activity & nutrition management), education, and play (AOTA, 2020). Children who have limited food intake or limited intake of a variety of food will often experience nutritional deficits negatively impacting their development physically but also socially, cognitively, and emotionally (Carpenter & Garfinkel, 2021; Esteban-Figuerola et al., 2019; Saini et al., 2019). Children with PFD may experience social isolation from peers and lower self-esteem. These can occur from receiving different meals, not participating in mealtime, or having mealtime behaviors (Novak & Honan, 2019; Volkert et al., 2021;). Research has shown that children with PFD who go through feeding therapy have an increase in food variety intake and the overall amount of food eaten, in turn increasing nutritional intake, overall health, and development while decreasing mealtime behaviors and social isolation (Johnson et al., 2019; Knight et al., 2019; Novak & Honan, 2019).

### ***Effects on Child's Family***

It is key to understand how PFD can impact the family dynamic as this is such an important social context for the child. When understanding what roles, a child holds within their life and what roles parents/caregivers and siblings and other family members may hold to help transfer therapy skills to natural contexts and carry out home programming along with keeping a healthy parent/caregiver and child relationship (Didehbani et al., 2011). One major role/occupation of parents/caregivers is to care for and meet the needs of their children and when

a child has PFD many parents/caregivers feel they are failing and place much of the blame on themselves as most children start developing problematic feeding behaviors between ages 2-3 (Carpenter& Garfinkel, 2021; Estrem et al., 2017; Williams et al., 2015).

Williams et al. (2015) found that parents will experience stress worrying about the child's overall health with limited food intake which may put a strain on the parent/caregiver and child relationship. The stress on the relationship can be due to the child having mealtime behaviors, having to make multiple meals for themselves, the child with PFD and other children in the home and lacking a healthy way to cope and manage the emotions they are feeling (Carpenter & Garfinkel, 2021). There has been a rise in interventions for PFD being carried out by occupational therapy because the scope of practice is holistic, client-centered, and family-centered being able to target many areas of concern (Carpenter & Garfinkel, 2021). The central intervention focus in occupational therapy is to facilitate mealtimes where children increase food intake and variety of food at mealtimes and decrease mealtime behaviors (Carpenter & Garfinkel, 2021; Johnson et al., 2019).

### **Occupation Based Model**

The Ecological Model of Human Performance (EHP) was chosen as the model to guide the development of the scholarly project. EHP has a unique focus on how the person, context, and tasks interact with each other and impact the individual's performance range. The performance range is what the person can do, and this can increase or decrease based on changes to the person, context, and/or task (Dunn, 2017). EHP is also designed to be used with an interprofessional team by using a more common language. It is important to use common language as children with PFD often receive care from a multitude of team members to make sure all concerns related to their PFD are addressed. There are also five approaches to treatment

practitioners can use when EHP is the model of choice and they are establish/restore, adapt/modify, alter, prevent, and create (Dunn, 2017). In *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* alter is the only intervention approach that is not directly used to create the home programming and educational resources.

Context in EHP is described in four different areas physical, social, cultural, and temporal (Dunn, 2017). All four areas of context are important and can impact the occupation of feeding. When analyzing the context of feeding as it relates to children it often happens when around others including but not limited to at home with parents/caregivers and siblings, school or daycare with other peers leading to a very active social context (Caldwell et al., 2018). Along with social context, the different places where meals occur and what time they happen can impact feeding which is the physical and temporal context (Caldwell et al., 2018; Saini et al., 2019). Lastly, food is often a way that different cultures express who they are, their traditions, and what they believe. Children eat and are offered food based on the culture that surrounds them as they usually are not responsible for preparing and buying food but rather parents and caregivers are (Kurowski-Burt & Corbett Miller, 2022).

The person in EHP is viewed in three different parts: psychosocial, sensorimotor, and cognitive (Dunn, 2017). Each of these aspects of the person can affect the ability to feed and eat. The main role of occupational therapy in feeding therapy of children with PFD addresses areas of concern related to the sensorimotor makeup of the individual. Sensorimotor concerns often include children with hyperactive or hypoactive sensory systems and/or concerns with oral motor function and other motor skills not being coordinated or strong enough to participate in feeding and eating (Engel-Yeger et al., 2016; Esteban-Figuerola et al., 2019; Estrem et al., 2017; Goday et al., 2019; Howe et al., 2016). Other areas of the person are important to address during feeding

therapy even though they may not be what occupational therapy is directly targeting in feeding therapy. A larger portion of children with PFD have other diagnoses that impact their psychosocial or cognitive aspects. These diagnoses include but are not limited to autism spectrum disorder (ASD), developmental delays, intellectual disabilities, and neurological-based diagnoses.

The tasks are things we need or want to do that help meet bigger goal(s) in life (Dunn, 2016). Feeding and eating are essential to life and essential to being able to meet the bigger goals and participating in meaningful occupations, therefore, making it a task we all must do. Feeding and eating fall under the physiological needs or the most basic needs in Maslow's Hierarchy, so if those most basic needs are not being met an individual will not be able to engage in anything above that (Maslow, 1943).

### **Interprofessional Team**

There are four areas of feeding and eating that a child can experience difficulties with if diagnosed with PFD and they are medical, nutritional, feeding skill, and psychosocial aspects (Goday et al., 2019). Not all four areas have to be impacted but often more than just one is impacted, leading to many professionals working with the child and the importance of interprofessional teamwork. The most common professions that can be included in a PFD treatment team include physician, gastrointestinal specialist, dietician, psychologist, speech therapist, nurse, and occupational therapist but it is not limited to these (Fleet et al., 2022; Howe & Wang, 2013; Marshall et al., 2015; Sharp et al., 2017 & Volker et al., 2021). It is important to note that some professions' roles may overlap. In the case of occupational therapy and feeding therapy, they may have areas of practice that overlap with speech therapy. Occupational therapy and speech therapy can both evaluate and treat physiological feeding skills such as breathing,



sucking, swallowing, and motor strength and stability of the jaw and tongue and swallowing (Goday et al., 2019; Howe & Wang et al., 2013; Sharp et al., 2017). It is important to understand occupational therapists and speech therapists can both target the oral motor skills need for feeding, but the facility they are working at may specifically designate one profession over the other to do it (Howe & Wang, 2013).

### **Evaluation Process for PFD**

The literature shows that there are a few assessments for occupational therapist to use when evaluating for pediatric feeding disorders, but there is not a standardized one that includes all areas of feeding (Barlow & Sullivan, 2021). It was found in the literature when completing and feeding and eating evaluation you want to assess what foods they are currently eating, sensory sensitivities, behaviors that come with meals, and oral motor skills due to the complexities and multifactorial components that affect feeding (Davis et al., 2013; Ramsay et al., 2011). This can be completed through different evaluations, asking questions to the child and/or parent/caregiver or by skilled observation.

### **Common Interventions to Address PFD**

The main interventions found in the literature that have shown to be most effective when treating PFD are behavioral treatments, systematic desensitization, operational conditioning, Mealtime PREP, parent training, and parent role modeling (Caldwell et al., Carpenter & Garfickel, 2021; 2018; Draxten et al., 2014; Fleet et al., 2022; Howe & Wang et al., 2013; Marshall et al., 2015; Novak & Honan, 2019; Sharp et al., 2017;). Some of these interventions may be used alongside each other to see better results. An example is the use of systematic

desensitization along with parent training for carry over at home and other natural contexts (Marshall et al., 2019).

Carpenter and Garfinkel (2021) found that parents feel more hopeful, and confident when given home programming. When intervention does not include home programming parents are more likely to feel frustrated and overwhelmed (Carpenter and Garfinkel, 2021). Caldwell et al. (2018) found Mealtime PREP to be an adequate intervention to increase child feeding outcomes when in feeding therapy due to its unique focus on both the child and parent as participants. Mealtime PREP is designed to promote behavioral changes in the child and the parent/caregivers. Behavioral changes in the parent/caregiver are crucial as they have primary control over the child's food options and mealtime environment. When slight changes are made to those two things, feeding outcomes are more successful (Caldwell et al., 2018).

During Mealtime Prep parents are coached to carry out evidence-based techniques that can be used during the families' mealtimes using a behavioral action approach for behavioral change (Caldwell et al., 2022). Coaching through the behavioral action approach consisted of 4 different pieces which are skills training, goal setting, activity scheduling, and activity monitoring which are used to help promote food acceptance by the child (Novak & Honan, 2019). Other parts of the intervention that are used include positive reinforcement which is the recognition of positive behavior by praising it, repeated exposure to food, and playing with food (Caldwell, 2022). During Mealtime Prep parents must be active in the therapy session as they learn to carry out interventions during the session that encourage food acceptance and receive feedback from the therapist. Common interventions used to help avoid inappropriate mealtime behaviors included scrap bowls, signing or stating "all done", or taking a drink of water and limiting screen use all while encouraging their child to play and explore food (Caldwell, 2022).

Draxten et al. (2014) found that parent role modeling increases the variety of foods a child will eat and is also a part of Mealtime Prep (Caldwell et al., 2018). Parent role-modeling consists of the parent/caregiver eating different foods they would like the child to try at meals and snacks to help expose the child to the food and show them it is okay to eat it (Draxten et al., 2014). Behavioral intervention is also important as many children experience unwanted mealtime behaviors. This is usually addressed through positive reinforcement of appropriate behaviors and stimulus fading (Sharp et al., 2017).

Systematic desensitization and operant conditioning are used as interventions in feeding therapy to improve dietary intake and variety along with decreasing unwanted mealtime behaviors (Marshall et al., 2015). Systematic desensitization is used by exposing the child to foods, taking away what they fear or dislike about them leading to an acceptance of the food and a decrease in behavior. This is considered a bottom-up approach and can be implemented by playing with the food, talking about the food, or just having it in the environment while doing something else (Marshall et al., 2015). Operant conditioning is a specific type of behavioral intervention but is considered to be a top-down approach to therapy (Marshall et al., 2015; Sharp et al., 2017). Operant conditioning revolves around giving the child a prompt and a reward for following the prompt (Marshall et al., 2015).

Marshall et al. (2015) found 3 major features that should be a part of parent/caregiver training; (1) use of written educational materials, (2) feedback to parents/caregivers when carrying out home programming, and (3) immersing parents/caregivers in the majority of therapy sessions. The average reading level of an adult in the United States is 5<sup>th</sup> grade so it is essential to keep this in mind along with their preferred learning style when educating parents both in sessions and through home programming (Kitchie et al., 2020). If therapists are giving

educational materials in ways or at levels the parents are not able to understand, it will not be implemented at home or assist in progressing the child toward their goals. This can be due to parents not understanding how to carry it out properly or not understanding the importance of the home programming and interventions being carried out.

## **Summary**

PFD is estimated to affect 25% of typically developing children, 80% with intellectual disabilities, and 40-70% of children with other medical complexities (Estrem et al., 2019; Saini et al., 2019; Sharp et al., 2017). PFD can be diagnosed based on impacted oral intake due to medical, nutritional, feeding skills, or psychosocial dysfunction (Goday et al., 2019). Feeding, eating, and swallowing can be impacted by the context around them including social, physical, cultural, and temporal. PFD can also put stress on family dynamics including strain on the child and parent/caregiver relationship (Carpenter and Garfinkel, 2021; Williams et al., 2015).

Occupational therapists are equipped to address concerns related to feeding skills including motor skills either orally or skills that are used to get food/water from dish/utensil to mouth, sensory difficulties, and mealtime behaviors (Carpenter & Garfinkel, 2021; Engel-Yeger et al., 2016; Esteban-Figuerola et al., 2019; Estrem et al., 2017; Goday et al., 2019; Howe et al., 2016).

Commonly used interventions by occupational therapists when addressing PFD include behavioral treatments, systematic desensitization, operational conditioning, Mealtime PREP, parent training, and parent role modeling (Caldwell et al., Carpenter & Garfinkel, 2021; 2018; Draxten et al., 2014; Fleet et al., 2022; Howe & Wang et al., 2013; Novak & Honan, 2019; Sharp et al., 2017). Occupational therapy is guided using a holistic, client-centered, and family-centered approach that can target many areas of concern with feeding along with working with

parents/caregivers when implementing home programming (Carpenter & Garfinkel, 2021; Johnson et al., 2019).

## Chapter III

### Methods

It is estimated that 25% of typically developing children, 80% of children with intellectual disabilities and 40-70% of children with other medical complexities experience feeding difficulties (Estrem et al., 2019; Saini et al., 2019; Sharp et al., 2017). Feeding and eating are activities of daily living that are essential to human existence. Occupational therapy practitioners are essential members of the interprofessional team when working with children with pediatric feeding disorders. When children are having difficulties with feeding and eating it can cause concerns within other areas of occupation along with adding stress to the parents/caregivers as they may feel they are not meeting their child's most basic needs (Maslow, 1943). *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* was developed using a preliminary literature search, a comprehensive literature review guided by the Ecology of Human Performance (EHP) Model. It was determined that home programming was needed in the areas of oral motor skills, safe ergonomics, best eating contexts, differentiating between the roles of occupational therapy and speech therapy during feeding therapy and developmental milestones to assist parents/caregivers in addressing their child's specific feeding needs.

### Theoretical Framework

The occupation-based model chosen to guide and organize the design of the *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* was EHP, due to its unique focus on environment and how it impacts an individual performance range (Dunn, 2017). An additional reason it was selected as the occupation-based model is the design emphasis on interprofessional teams, which are extremely common in feeding therapy due to the complexities

of feeding, eating, and swallowing (Fleet et al., 2022; Howe & Wang, 2013; Marshall et al., 2015; Sharp et al., 2017 & Volker et al., 2021). Before starting the literature search, questions were formed using The EHP Model. The questions informed the search phrase used to complete literature review. The main constructs of EHP include the person, context, and tasks (Dunn, 2017). When looking at how the person, context, and tasks interact with and impact each other, it creates the performance range (Dunn, 2017). Feeding is a complex and dynamic occupation where the person, task and context are always changing, making EHP a good fit to guide the creation and completion of the capstone.

### **Project Timeline**

The literature review was completed using online databases through The School of Medicine and Health Sciences Library Resources including CINAHL and PubMed, along with the American Occupational Therapy Association (AOTA) and The American Journal of Occupational Therapy (AJOT). The Boolean search phrase used was “(“Feeding disorder” OR “mealtime behavior” OR “eating habits” OR “food intake” OR swallowing OR feeding OR eating) AND (pediatric OR children OR youth OR infant) AND (intervention OR program OR protocol OR “occupational therapy” OR treat OR assess OR evaluation OR assist).” Other key search words used on AOTA and AJOT included “Pediatric Feeding Disorder”, “Avoidant Restrictive Food Intake Disorder”, “Occupational Therapy”, “Mealtime Behavior”, “Eating Habits”, and “feeding, eating and swallowing”.

The inclusion criteria determined at the start of the literature review search were articles within 15 years, journal articles, books, government published guidelines, and all studies must be in English. Exclusion criteria was set as older than 15 years, articles in any other language than English and conference presentations.

A literature review was conducted through an adequate search and a synthesis of information was created forming Chapter II: Literature Review. The creation of the literature review helped to inform a better understanding of what Pediatric Feeding Disorders are, barriers and supports to treatment, how to evaluate, best treatment interventions and understanding who all can be involved in treatment as it can involve an exceptionally large and diverse interprofessional team.

The author collaborated with occupational therapy and speech therapy practitioners at an outpatient pediatric clinic in the Midwest. The author observed, engaged in, and received feedback about feeding sessions and evaluations under the supervision of an occupational therapist. Informal interviews with practitioners and families occurred to better understand the needs of the population and home programming. An in-service event was held with therapist at the Midwest clinic. The purpose of the in-service was to present information on the home programming materials that had been created and to gather feedback from occupational and speech practitioners working with PFD clients.

The information was presented with the use of more advanced terminology but was explained clearly. There was a time for practitioners to ask any questions and give feedback they had about the created resources. Feedback was taken into consideration and changes were made as appropriate. Ethical considerations included citing the correct resources and tools used, along with following HIPPA guidelines by not using examples of specific patients when giving examples of how the home programming could be used.



## Chapter IV

### Product

Literature shows that 25% of typically developing children, 80% of children with intellectual disabilities, and 40-70% of children with other medical complexities experience feeding difficulties (Estrem et al., 2019; Saini et al., 2019; Sharp et al., 2017). When children are experiencing feeding and eating difficulties it impacts all other areas of occupation, besides the ADLs of feeding and eating. Eating is one of the most basic needs humans must do to survive and when children are having difficulties with it parents or caregivers experience a great amount of stress. This stress is due to parents being concerned about the overall health and well-being of their child along with concerns of not being a good enough caregiver and having challenging meals that may include the child refusing to eat, inappropriate behaviors or parents cooking multiple food options for one meal (Carpenter & Garfinkel, 2021, Williams et al., 2015).

The literature along with an onsite needs assessment at the Midwest pediatric clinic led to the creation of the home programming and educational resources for parents/caregivers of children with PFD. The needs identified of the population were finding ways to carryover what is being worked on in therapy into the home setting so it can be worked on more than once or twice a week in the therapy clinic. It was also found that parents do not always understand what feeding therapy is before coming to an evaluation or once at the first few sessions. *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* consists of home programming and educational resources for parents and caregivers of children receiving feeding therapy. The home programming is designed to be used by parents and caregivers with further instruction from the occupational and/or speech therapist as they target the child's specific needs relating to oral motor skills, sensory sensitivities and creating a healthy feeding and eating environment for

not only the child, but the whole family at meals. Please refer to Appendix A to see the home programming and educational resources contained within *Occupational Therapy's Role When Treating Pediatric Feeding Disorders*.

Ecology of Human Performance was the model chosen to guide the creation of the home programming and educational resources due to its unique focus on context and interprofessional team (Dunn, 2017). Feeding and eating are very complex occupations and when a child is having difficulties with one or both of these things, it can require a comprehensive treatment team (Fleet et al., 2022; Howe & Wang, 2013; Marshall et al., 2015; Sharp et al., 2017 & Volker et al., 2021). When working in a treatment team it is important that all are on the same page so that the child is receiving the best services to target their individual needs. It is also important to understand the context where feeding and eating is occurring for the child. Context includes the physical environment along with the social, temporal, and cultural which can all impact feeding and eating in positive and negative ways (Dunn, 2017). The Sensory Integration frame of reference was also used when creating the home programming and educational resources, which is evident when looking at ways to make changes to the context the child is eating in and desensitizing the child to different smells, taste, textures and the way food looks (Bodison & Parham, 2018)

*Occupational Therapy's Role When Treating Pediatric Feeding Disorders* contains educational resources and home programs to be used by parents/caregivers in the child's natural contexts. The educational resources and home programs are categorized into four areas (1) oral motor skills, (2) desensitization of the sensory system, (3) understanding developmental milestones, and (4) creating a healthy eating environment. The product is written at a fifth-grade reading level because health-related literature is recommended to be written at sixth grade level or below (Elliott et al., 2007). When creating the home programming sheets all EHP intervention

approaches were taken into consideration. The intervention approaches include create, establish/restore, adapt/modify, alter, and prevent (Dunn, 2017). These different approaches help to target either the person, the context, or the task which then help to increase the overall performance range. Create is used in the home programming sheets designed to engage the child in messy play as it is important for any child to engage in activities of messy play to help develop their sensory system overall (Dunn, 2017). Establish/restore is used on the home programming sheets that target oral motor activities as they are working on building the oral motor skills needed for feeding and eating (Dunn, 2017). Prevent is used within *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* by having an educational handout on the developmental milestones so parents can be aware of the skills their child should have and seek further services if they notice their child is not meeting them (Dunn, 2017). Adapt/modify is used when giving the home programming handout on how to make a positive context for eating and how to make eating different foods more fun (Dunn, 2017). Due to the needs of the project it was found that alter was not appropriate to use in the home programming and educational resources.

*Occupational Therapy's Role When Treating Pediatric Feeding Disorders* consist of home programming and educational resources for parent/caregivers to use at home. This is of value to the population as it helps to carry-over skills learned in feeding therapy sessions to more natural contexts. These resources are readily available for both occupational therapists and speech therapists to handout to provide parents/caregivers with further instructions to target the specific needs of each child and keep therapy client centered.

## Chapter 5

### Summary

The purpose of *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* was to create home programming and educational resources for parents and caregivers of children who have Pediatric Feeding Disorders (PFD). The author hopes it helps to educate parents/caregiver different activities that can complete with their child at home to support what is being targeted in feeding therapy, along with understanding what a good and safe eating environment is along with what is typical for a child of their age. With parents and caregivers having these resources the goal is to increase progress in feeding therapy. PFD affects a large number of children that are typically developing, have medical complexities and/or have intellectual disabilities and can impact other areas of life making it important to address (Estrem et al., 2019; Saini et al., 2019; Sharp et al., 2017).

### Implications for Occupational Therapy

Occupational therapists are educated and trained to make the process of therapy as holistic and client centered as possible, which makes them an ideal interprofessional team member when treating PFD (AOTA, 2020). This is so important because feeding and eating can be different for each child and their family, so it is important to meet their specific needs. Feeding and eating is also apart of out most basic physiological needs and when we can not meet those needs we are unable to participate in other occupations such as leisure, play, social participation or self-cares (AOTA, 2020; Maslow, 1943). When occupational therapy is helping to address PFD, they are also able to see how it is impacting other areas of life and address those too. Lastly, occupational therapist has a unique skill set to view the context in which feeding and

eating occurs including the physical, social, temporal and cultural and find ways to adapt or alter the context to fit the child's needs or better prepare the child for what is about to occur during the occupation of feeding and eating (Dunn, 2017).

## **Recommendations and Limitations**

*Occupational Therapy's Role When Treating Pediatric Feeding Disorders* was created to be implemented at a pediatric outpatient therapy clinic with children who are receiving services for feeding therapy from occupational therapy, speech therapy or both professions. The clinic has multiple locations, so the resources are designed to be used across all locations. During feeding team meetings at one of the clinic locations the resources have been explained to both occupational therapists and speech therapists. The resources have been posted on an online database where every clinic location will have access to them. The clinic will have access to the original resources and be able to make changes as therapist see fit after using them with parents, caregivers and the child in feeding therapy.

*Occupational Therapy's Role When Treating Pediatric Feeding Disorders* is designed to be easily accessible by therapist to give to parents and caregivers of children in feeding therapy to carry over strategies and success from the clinic to home. When using home programming materials, it is up to the therapist to determine which is appropriate for each child and give out further instructions as need to meet the unique needs of each child. By having these resources easily accessible and able to give more information for each specific child it helps to give a more holistic approach to therapy and carry it over to different context in the child's life.

A limitation is it the home programming was designed specifically for families and caregivers of children ages 0-18 years old diagnosed with pediatric feeding disorders living in

the Midwest. The child with the diagnosis of PFD may have other diagnosis including autism, attention-deficit/hyperactivity disorder, anxiety, failure to thrive, or developmental delays.

Another limitation is no research was conducted on the effectiveness of the home programming and educational resources.

## **Conclusion**

The project was produced using evidenced-based research and EHP as the guiding model. *Occupational Therapy's Role When Treating Pediatric Feeding Disorders* was created to help carry over progress and strategies from the context of the clinic to more natural contexts in the child's life like home. These resources are designed to further educate parents and caregivers along with refining skills learned in sessions. The product was designed with a holistic approach by considering the occupation of feeding and eat, the context where it occurs and the individual engaging in it (Dunn, 2017).

## References

- American Occupational Therapy Association (AOTA). (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy*, 74(Suppl. 2), 7412410010. <https://doi.org/10.5014/ajot.2020.74S2001>
- Barlow, K., & Sullivan, K. (2021). Evaluation of feeding, eating, and swallowing for children with cerebral palsy. *American Occupational Therapy Association*. [https://www.aota.org/-/media/Corporate/Files/Publications/CE-Articles/CE\\_March\\_2021.pdf](https://www.aota.org/-/media/Corporate/Files/Publications/CE-Articles/CE_March_2021.pdf)
- Bodison, S. C., & Parham, L. D. (2018). Specific sensory techniques and sensory environmental modifications for children and youth with sensory integration difficulties: A systematic review. *American Journal of Occupational Therapy*, 72(1), 1–11. <https://doi.org/10.5014/ajot.2018.029413>
- Caldwell, A. R., Skidmore, E. R., Raina, K. D., Rogers, J. C., Terhorst, L., Danford, C. A., & Bendixen, R. M. (2018). Behavioral activation approach to parent training: Feasibility of Promoting routines of exploration and play during mealtime (Mealtime PREP). *American Journal of Occupational Therapy*, 72(6), 1–8. <https://doi.org/10.5014/ajot.2018.028365>
- Caldwell, A. R., Skidmore, E. R., Terhorst, L., Raina, K. D., Rogers, J. C., Danford, C. A., & Bendixen, R. M. (2022). Promoting Routines of Exploration and Play during Mealtime: Estimated Effects and Identified Barriers. *Occupational Therapy In Health Care*, 36(1), 46–62. <https://doi.org/10.1080/07380577.2021.1953205>
- Carpenter, K. M., & Garfinkel, M. (2021). Home and parent training strategies for Pediatric Feeding Disorders: The caregivers' perspective. *Open Journal of Occupational Therapy* 9(1), 1–21. <https://doi.org/10.15453/2168-6408.1725>

- Davis, A. M., Bruce, A. S., Khasawneh, R., Schulz, T., Fox, C., & Dunn, W. (2013). Sensory processing issues in young children presenting to an outpatient feeding clinic. *Journal of Pediatric Gastroenterology and Nutrition*, 56(2), 156-160. doi: 10.1097/MPG.0b013e3182736e19.
- Didehbani, N., Kelly, K., Austin, L., & Wiechmann, A. (2011). Role of Parental Stress on Pediatric Feeding Disorders. *Children's Health Care*, 40(2), 85–100.  
<https://doi.org/10.1080/02739615.2011.564557>
- Draxten, M., Fulkerson, J. A., Friend, S., Flattum, C. F., & Schow, R. (2014). Parental role modeling of fruits and vegetables at meals and snacks is associated with children's adequate consumption. *Appetite*, 78, 1–7. <https://doi.org/10.1016/j.appet.2014.02.017>
- Elliott, J. O., Charyton, C., & Long, L. (2007). A health literacy assessment of the National Epilepsy Foundation Web site. *Epilepsy and Behavior*, 11(4), 525-532.
- Engel-Yeger, B., Hardal-Nasser, R., & Gal, E. (2016). The relationship between sensory processing disorders and eating problems among children with intellectual developmental deficits. *British Journal of Occupational Therapy*, 79(1), 17–25.  
<https://doi.org/10.1177/0308022615586418>
- Esteban-Figuerola, P., Canals, J., Fernández-Cao, J. C., & Arija Val, V. (2019). Differences in food consumption and nutritional intake between children with autism spectrum disorders and typically developing children: A meta-analysis. *Autism*, 23(5), 1079–1095.  
<https://doi.org/10.1177/1362361318794179>



- Estrem, H. H., Pados, B. F., Park, J., Knafl, K. A., & Thoyre, S. M. (2017). Feeding problems in infancy and early childhood: Evolutionary concept analysis. *Journal of Advanced Nursing*, 73(1), 56–70. <https://doi.org/10.1111/jan.13140>
- Goday, P. S., Huh, S. Y., Silverman, A., Lukens, C. T., Dodrill, P., Cohen, S. S., Delaney, A. L., Feuling, M. B., Noel, R. J., Gisel, E., Kenzer, A., Kessler, D. B., Kraus de Camargo, O., Browne, J., & Phalen, J. A. (2019). Pediatric feeding disorder: Consensus definition and conceptual framework. *Journal of Pediatric Gastroenterology & Nutrition*, 68(1), 124–129.
- Howe, T.-H., & Wang, T.-N. (2013). Systematic review of interventions used in or relevant to occupational therapy for children with feeding difficulties ages birth–5 years. *The American Journal of Occupational Therapy*, 67(4), 405–412. <https://doi.org/10.5014/ajot.2013.004564>
- Johnson, C. R., Brown, K., Hyman, S. L., Brooks, M. M., Aponte, C., Levato, L., Schmidt, B., Evans, V., Huo, Z., Bendixen, R., Eng, H., Sax, T., & Smith, T. (2019). Parent training for feeding problems in children with Autism Spectrum Disorder: Initial randomized trial. *Journal of Pediatric Psychology*, 44(2), 164–175. <https://doi.org/10.1093/jpepsy/jsy063>
- Knight, R. M., Albright, J. J., Huth-Bocks, A., Morris, N. K., Mills, L., Klok, K., Kallabat, N., & Drayton, A. K. (2019). Impact of behavioral feeding intervention on child emotional and behavioral functioning, parenting stress, and parent-child attachment. *Journal of Pediatric Gastroenterology & Nutrition*, 69(3), 383–387. <https://doi.org/10.1097/MPG.0000000000002382>

- Marshall, J., Hill, R. J., Ware, R. S., Ziviani, J., & Dodrill, P. (2015). Multidisciplinary intervention for childhood feeding difficulties. *Journal of Pediatric Gastroenterology and Nutrition*, 60(5), 680–687. <https://doi.org/10.1097/MPG.0000000000000669>
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396. <https://doi-org.ezproxylr.med.und.edu/10.1037/h0054346>
- Novak, I., & Honan, I. (2019). Effectiveness of paediatric occupational therapy for children with disabilities: A systematic review. *Australian Occupational Therapy Journal*, 66(3), 258–273. <https://doi.org/10.1111/1440-1630.12573>
- Ramsay, M., Martel, C., Porporino, M., & Zygmuntowicz, C. (2011). The Montreal Children's Hospital Feeding Scale: A brief bilingual screening tool for identifying feeding problems. *Paediatrics & child health*, 16(3), 147–e17. <https://doi.org/10.1093/pch/16.3.147>
- Saini, V., Kadey, H. J., Paszek, K. J., & Roane, H. S. (2019). A systematic review of functional analysis in pediatric feeding disorders. *Journal of Applied Behavior Analysis*, 52(4), 1161–1175. <https://doi.org/10.1002/jaba.637>
- Sharp, W. G., Volkert, V. M., Scahill, L., McCracken, C. E., & McElhanon, B. (2017). A systematic review and meta-analysis of intensive multidisciplinary intervention for pediatric feeding disorders: How standard is the standard of care? *The Journal of Pediatrics*, 181, 116-124.e4. <https://doi.org/10.1016/j.jpeds.2016.10.002>
- Volkert, V. M., Burrell, L., Berry, R. C., Waddle, C., White, L., Bottini, S., Murphy, M., & Sharp, W. G. (2021). Intensive multidisciplinary feeding intervention for patients with avoidant/restrictive food intake disorder associated with severe food selectivity: An

electronic health record review. *International Journal of Eating Disorders*, 54(11), 1978–1988. <https://doi.org/10.1002/eat.23602>

Williams, K. E., Hendy, H. M., Field, D. G., Belousov, Y., Riegel, K., & Harclerode, W. (2015). Implications of Avoidant/Restrictive Food Intake Disorder (ARFID) on children with feeding problems. *Children's Health Care*, 44(4), 307–321. <https://doi.org/10.1080/02739615.2014.921789>

## Appendix

### Home Programming and Educational Resources

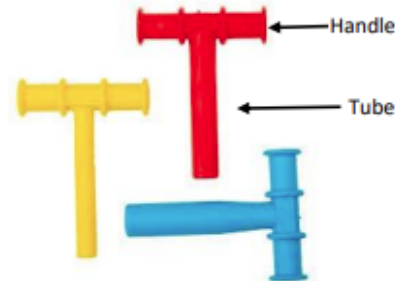


## Chewy Tube Protocol

**Purpose of Chewy Tube:** Increase jaw strength, necessary for biting and chewing a variety of textured foods.

### Chewy Tube Order of Use:

1. Yellow (start here, most narrow, and softest)
2. Red
3. Blue
4. Green



**Goal:** Place the chewy tube on large teeth in back mouth, one side at a time, and have the child bite down on the tube **12-15 times, 3 times a day** using a rhythmic chew. eSpecial Needs, n.d.

- **Rhythmic chews:** chews without stopping for the 12-15 bites

Start with one chewy tube at a time, once mastered move to the next chewy tube.

The chewy tube being used is mastered once you see the following:

- Demonstration of rhythmic chews 12-15 times, 3 times during the day
- Quality up and down chews (a full squeeze and then full release of the chewy tube during each trial- no munching)
- The child completes the task sitting up straight, NOT leaning forward, and has hands off face

### **How to insert the chewy tube:**

1. Hold onto the handle and tell the child to open mouth.
2. From the side of the mouth place the tip of the chewy tube on the surface of the large teeth in back of mouth (molar teeth). It should cover the entire surface.
3. Direct the child to chew/bite down on it for 12-15 trials while counting out loud.
4. While the child is biting look to see if they are completing the rhythmic chews

\*If they do not initiate any movement, model, and show them how to do it with a different chewy tube.

Phone: 952.223.2506 - [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) - Email: [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

\*Disclaimer: Activities recommended under the direction of a licensed speech and/or occupational therapist



## Feeding Developmental Milestones



Freepik, n.d.

Feeding is complex and builds upon many skills. There are milestones just for feeding, but it is important that motor milestones are also met to support the skills of feeding.

### Birth - 3 months

#### *Feeding Skills*

- Sucks on bottle and/or breast
- Around 3 months starts to use the suck/swallow/breathe rhythm
- Tongue moves forward and backwards to suck
- Brings hands up to bottle or breast to help hold it
- Only eating breast milk or formula



#### *Motor Skills*

- Starts making faces to show how they are feeling
- Using left and right hands and mouth to explore items around them
- Start bringing hands to mouth or grabbing items around them
- Puts hands in their mouth

Eco One Step, n.d.



Parenting Counts, n.d.

Phone : 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email : [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Adapted From:

Myott, F., Hall, L., Rackley, M., & Busch, A. (2016). *Developmental Milestones Guide*. Coastal OT Connections.  
Ryan, M. (2019, April 8). *Feeding Milestones for Infants, Toddlers, and Children*. Butterfly Paediatric Therapy



# Feeding Developmental Milestones



Freepik, n.d.

Feeding is complex and builds upon many skills. There are milestones just for feeding, but it is important that motor milestones are also met to support the skills of feeding.

## 4 - 6 months




### Feeding Skills

- Helps hold bottle with left and right hand
- Opens mouth when they see a bottle or spoon
- Starts eating baby cereal or baby food around 5 or 6 months
  - Baby foods are purees or smooth runny foods
  - Recommend one ingredient foods
- Picks flavors they like and dislike

### Motor Skills

- Sits using arms to stop themselves from falling over
- Sits upright with help from adults
- Tummy and neck muscles get stronger
- Head moves towards food or away from food
- Reaches for food when hungry

\*\*\*Before starting new foods please talk with your child's primary provider to make sure they are ready and safe.

6 months	7 to 8 months	9 to 12 months
Strained, pureed, smooth foods	Mashed, minced, grated, finely chopped foods; table and finger foods	Diced, cubed, table and finger foods
		

Healthy Parenting Winnipeg, n.d.

Phone : 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email : [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Adapted From:

Myott, F., Hall, L., Rackley, M., & Busch, A. (2016). *Developmental Milestones Guide*. Coastal OT Connections.  
Ryan, M. (2019, April 8). *Feeding Milestones for Infants, Toddlers, and Children*. Butterfly Paediatric Therapy

## Feeding Developmental Milestones



Freepik, n.d.

Feeding is complex and builds upon many skills. There are milestones just for feeding, but it is important that motor milestones are also met to support the skills of feeding.

### 7-9 months

#### Feeding Skills

- Sits in highchair to eat
- Drinks from bottle without help
- Eating thicker purees, lumpy solids, or mashed table foods.
- Coordinating mouth movements to munch up and down
  - Can see munching even if child does not have teeth yet
- If food is on side of mouth, the child will move their tongue to the side to try and reach it.
- Top lip gets food off spoon
- Fuller longer
- Bigger reactions to new smells or taste
- Start getting teeth
  - Uses teethingers while teething
- Start drinking from straw and open cup with help

#### Motor Skills

- Sits alone
  - Does not use hands to keep from falling over
- Looks for items around them and reaches for what they want

6 months	7 to 8 months	9 to 12 months
Strained, pureed, smooth foods	Mashed, minced, grated, finely chopped foods; table and finger foods	Diced, cubed, table and finger foods

\*\*\*Before starting new foods please talk with your child's primary provider to make sure they are ready and safe.



Healthy Parenting Winnipeg, n.d.

Phone : 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email : [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Adapted From:

Myott, F., Hall, L., Rackley, M., & Busch, A. (2016). *Developmental Milestones Guide*. Coastal OT Connections.  
 Ryan, M. (2019, April 8). *Feeding Milestones for Infants, Toddlers, and Children*. Butterfly Paediatric Therapy



## Feeding Developmental Milestones



Freepik, n.d.

Feeding is complex and builds upon many skills. There are milestones just for feeding, but it is important that motor milestones are also met to support the skills of feeding.

### 10-12 Months


#### Feeding Skills

- Feeding self with fingers
- Adding more foods to what your child will eat
- Taking sips from an open cup and straws
- Ready to try soft-cooked vegetables, soft fruits, and finger foods
- Bites through soft foods
  - Examples can be cooked carrots, scrambles eggs, or bananas
- Moves foods from center of mouth to sides with tongue when chewing
- Likes more smells and tastes
- Licks food off lips

#### Motor Skills

- Using pointer finger and thumb (pincer grasp) to pick up food
- Pokes food with pointer finger
- Learning how to use utensils during mealtimes
  - Learning to use open cups and utensils may lead to spills. Help as needed.

6 months	7 to 8 months	9 to 12 months
Strained, pureed, smooth foods	Mashed, minced, grated, finely chopped foods; table and finger foods	Diced, cubed, table and finger foods



\*\*\*Before starting new foods please talk with your child's primary provider to make sure they are ready and safe.

Healthy Parenting Winnipeg, n.d.

Phone : 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email : [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Adapted From:

Myott, F., Hall, L., Rackley, M., & Busch, A. (2016). *Developmental Milestones Guide*. Coastal OT Connections.  
Ryan, M. (2019, April 8). *Feeding Milestones for Infants, Toddlers, and Children*. Butterfly Paediatric Therapy





## Feeding Developmental Milestones



Freepik, n.d.

Feeding is complex and builds upon many skills. There are milestones just for feeding, but it is important that motor milestones are also met to support the skills of feeding.

### 12-18 Months

#### *Feeding Skills*

- Greater number of cut up table foods they eat
- Holds their own cup when drinking
- Biting skills keep getting better
- Lips closed when chewing and eating
- Uses tongue to move food from side to side in the mouth
- Copies adult eating around them
- Starts to eat crunchy foods around 18 months
  - Some examples are crackers, peeled apples, dry cereals, and dried fruit
- Most of the food ate should be solids or table foods
  - Should be weaning off milk/formula as main food source

#### *Motor Skills*

- Walking to explore the things around them
  - Including foods
- Starts to eat more of the same foods as adults and is better using utensils.

\*\*\*Before starting new foods please talk with your child's primary provider to make sure they are ready and safe.

Phone : 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email : [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Adapted From:

Myott, F., Hall, L., Rackley, M., & Busch, A. (2016). *Developmental Milestones Guide*. Coastal OT Connections.  
Ryan, M. (2019, April 8). *Feeding Milestones for Infants, Toddlers, and Children*. Butterfly Paediatric Therapy



## Feeding Developmental Milestones



Freepik, n.d.

Feeding is complex and builds upon many skills. There are milestones just for feeding, but it is important that motor milestones are also met to support the skills of feeding.

### 18-24 Months (2 years)

#### Feeding Skills

- Eats foods with crunchy texture (ex. some raw veggies/fruit, cookies, etc.)
- Drink/Swallowing well from a cup
  - Should not be biting the rim of cup
- Swallows without loss of food from mouth
- Foods they clearly like and dislike
- Chews with lips closed
- Has a rotary chew pattern

#### Motor Skills

- Scooping foods with spoons
  - Has some spills but becoming less
  - Uses fingers to help fill spoon with food
- Stabs food with a fork and brings to mouth
  - Has some spills but becoming less



Weaning World, 2020

\*\*\*Before starting new foods please talk with your child's primary provider to make sure they are ready and safe.

Phone : 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email : [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Adapted From:

Myott, F., Hall, L., Rackley, M., & Busch, A. (2016). *Developmental Milestones Guide*. Coastal OT Connections.  
Ryan, M. (2019, April 8). *Feeding Milestones for Infants, Toddlers, and Children*. Butterfly Paediatric Therapy

## Feeding Developmental Milestones



Freepik, n.d.

Feeding is complex and builds upon many skills. There are milestones just for feeding, but it is important that motor milestones are also met to support the skills of feeding.

### 2 - 3 Years

#### Feeding Skills

- Eats the same thing as everyone else at meals
  - includes foods of all textures (puree, soft, crunchy, mixed textures)
    - Mixed textures are many foods mixed into one. Examples include pizza, hotdish, and sandwiches
- Eating all food groups
  - Grains, vegetables, fruits, dairy, and proteins
  - Dairy can include dairy replacements
- Self feeds with utensils
  - Minimal or no spills by age 3
- Certain likes and dislikes with food
  - Refusing some foods
- Wipe hands and face with napkin



USDA, n.d.

#### Motor Skills

- Pour liquids into cup from a smaller container
- Holds fork with all fingers on dominant hand (fisted grasp)

### 4-5 Years

#### Feeding Skills

- Spread butter or cut soft foods with butter knife
- Feeds self and drinks without help

\*\*\*Before starting new foods please talk with your child's primary provider to check that they are ready and safe

Phone : 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email : [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Adapted From:

Myott, F., Hall, L., Rackley, M., & Busch, A. (2016). *Developmental Milestones Guide*. Coastal OT Connections.  
 Ryan, M. (2019, April 8). *Feeding Milestones for Infants, Toddlers, and Children*. Butterfly Paediatric Therapy



## Jaw Exercises

Having good jaw stability is important for being able to chew different foods when eating and being able to make the correct sounds when speaking. Below are activities you can do with your child to help increase jaw strength at home!

- **Play gentle tug of war with licorice.** Place licorice in your child's mouth and have them bite down on it with the back teeth. Gently tug what is outside the mouth. The goal is for the child to hold it in their teeth while you pull.
  - As they get stronger pull with more force, but not so much that you pull it right out or that it hurts.
  - Chewy tubes can be used, too!
- **Make bite marks in hard food like carrots, apple slices, beef jerky/beef sticks, dried fruit, celery, or jicama**
  - The goal is to bite on it, not to bite through it
- **Eat chewy foods**
  - Examples: gum, gummi bears/worms, fruit leather, fruit snacks, beef jerky or starbursts
    - Make sure foods are fully chewed swallowing it
    - Child should be chewing with the back teeth
  - Slowly give them harder to chew foods at meals or snacks (carrots, celery, apples, chewy meats like pork chops or steak etc.)
    - Make sure they are fully chewing the food before swallowing it.
    - Child should be chewing with the back teeth
- **Stimulate muscles!**
  - Use Z-vibe or other vibrating tool like an electric toothbrush and rub along jaw to help the jaw muscles move.
    - Make sure not to give too much vibration as it can be scary to some kids

Phone: 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email: [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Reference:

Grogan, A. (n.d.) *34 oral motor exercises that you never knew you needed.* Your Kids Table.  
Toomey, K., A. (2002). *Oral Motor Play Ideas.* SOS Approach to Feeding.

\*Disclaimer: Activities recommended under the direction of a licensed speech and/or occupational therapist



## Cheek and Lip Exercises

Cheeks and Lips are important for feeding, eating, and swallowing along with speaking and breathing. They help to create seals when swallowing and control food in the mouth

- Have the child hold a pretzel rod, licorice, or other similar food in between lips without using hands
  - Do it with your child and have a contest to see who can do it the longest
- Use straws when drinking during the day
  - Remind your child to have a tight seal around the straw
  - As they get better at using a straw give them thicker drinks like milkshakes, applesauce, or smoothies
- Suck up napkin or paper with straw and take it from one location to another
- Blow bubbles, whistles or pinwheels
- Blow cotton ball or other light object with a straw across the table or into a cup
- Blow up balloon and then let it go and watch it fly
- Make a bubble volcano by blow through a straw into soap and water
- Complete the following exercises in front of a mirror whenever possible***
- Hold a cheerio, fruit loop or other circle cereal in like they are whistling
  - Lips should be puckered
- Have the child say "hmmmm" or "mmmmmm" but keeps lips together
- Have the child go "e-o-e-o-e-o" like a monkey would
- Make a "fish face" switching between puckering lips with cheeks sucked in and puffing cheeks out or blow kisses
- Use purees, dips or sauces to put on "chapstick or lipstick" with lips puckered
  - Can have child kiss plate, paper, or table to make marks
  - Can also have child lick it off only using their tongue
- Chew foods with mouth closed

Phone: 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email: [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Reference:

Grogran, A. (n.d.) *34 oral motor exercises that you never knew you needed*. Your Kids Table.  
Toomey, K., A. (2002). *Oral Motor Play Ideas*. SOS Approach to Feeding.

\*Disclaimer: Activities recommended under the direction of a licensed speech and/or occupational therapist



## Making Mealtimes FUN

Mealtimes can be hard. Below are some tips to make it more fun, especially when introducing new foods.

- Play with the food! When introducing new foods, kids will be hesitant to eat them so start by touching, smelling, and playing with them. Ways to play with food include:
  - Making silly pictures on their plate
  - Make a mustache on their face
  - Make the food talk
  - Feed it to a doll/toy first
- Make variations to foods
  - Cut them in shapes, animals or letters
  - Add food coloring
- Let them help you make the food
- Let the child serve their own food
  - Made need some assistance from parents for safety
- Let them help you grocery shop and pick out new foods they want to try
- Have "yes food" and "not right now" foods on the plate.
  - Have the child interact with the "not right now food" and then let them have some "yes food"
  - Show them how the "yes food and the "not right now food" can be eaten together
    - Ex. Peanut butter (yes food) and apples (not right now food)
  - Reward them for interacting with the new food or so many trials
- Use fun plates, cups, and silverware (have characters on plates, favorite colors, fancy toothpicks.)



PBS Kids, 2022



Project Nursery, n.d.



## Messy Play



Yzquierdo, 2020

Messy play can help to get kid's body used to the feelings of different things. When they get used to the different feelings on their hands, arms, or face it prepares them for different feelings of food in their mouth.

### Messy Play Ideas with Food

- Paint with dips and sauces (ketchup, ranch, mustard, spaghetti sauce etc.)
- Paint with yogurt or cool whip (add food coloring to it)
- Play with cooked noodles or rice (can make different colored ones by boiling in water with food coloring)
- Play with Jell-O by putting toys inside when making it for your child to dig out once it sets
- Make sensory bins filled with toys and dry foods. Examples of dry foods below
  - Rice
  - Beans
  - Oatmeal
  - Cereal
  - Marshmallows
- Drive cars or other toys through pudding, dips, sauces, yogurt, or cool whip
- Bake/decorate cakes, cupcakes, pancakes, cookies, or holiday treats with your child

### Messy Play Ideas without Food

- Drawing or painting in shaving cream
- Crafts with paint, glue, cotton balls, and/or bubble wrap
- Play with water tables/buckets with different toys in it
- Make different shapes and letters with playdoh
- Outside activities
  - Draw in dirt and mud
  - Make snowballs, snow angels or a snowman (if it is too cold outside, put snow in a bowl and play with it inside)
  - Draw with chalk or chalk paint
- Play with water beads

If your child does not want to touch these different things with their hands use paint brushes, toy scoops, spoons, cups, stamps at first. Never force them to touch! It can stop them from trying to touch again. Assist them in using hands, arms, feet, or other parts of their bodies as they start to accept messy play.



## Making a Positive Eating Environment



Mealtimes can be smoother for everyone when there is a positive environment!

- Keep mealtimes 1 hour or less
- Eat together as a family
  - Try to all eat the same foods
  - Try new foods together
- Keep tv, tablets or other distractions limited
- Have child sit upright in chair/highchair with feet flat on floor/footrest
  - Sitting upright makes chewing easier and safer
- Avoid force feeding or pressuring the child into eating
  - Let the child make choices about the food on their plate
  - Avoid sayings such as "clean plate club" or similar sayings
- Encourage the child to interact with every food option
  - Interactions are not just eating and can include:
    - Having food on separate plate next to them at the meal
    - Having food on the plate with the foods they will eat
    - Talking about the smell, look or feeling of the food
  - Reward interactions with food by saying how proud you are of your child, clapping, and/or smiling
    - Avoid physically giving rewards like treats
  - Use neutral describing words when talking about food
    - These can be the color, if its wet or dry, smooth or bumpy, hot or cold
    - Avoid judgement words like "gross, icky, yuck etc"
- Put small amount of food on plate to start with
- Let the child tell you how food makes them feel
- Have a mealtime schedule (time and place)
  - 3 meals and 2 snacks each day is suggested
  - Keep meals and snacks around the same time each day
  - Avoid over snacking during the day

Phone: 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email: [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Adapted From:

Bennett, A. (n.d.) *An evidenced-based guide to toddler nutrition for healthcare professionals*. ToddleBox.

<https://www.toddlebox.ie/hcp/the-power-of-a-positive-eating-environment/>

UCSF Benioff Children's Hospitals. (n.d.) *Mealtime Atmosphere and Eating Behavior*.

<https://www.ucsfbenioffchildrens.org/education/mealtime-atmosphere-and-eating-behavior>





## Safe Seating When Eating

How your child is sitting during meals is important. Not sitting in the correct position can make chewing, swallowing, and using utensils difficult. Sitting without good support can lead to kids moving more during mealtimes, increase unwanted behaviors or even falling off the chair.

### Body Position in Chair, Highchair or Booster Seat

- Hips at 90 Degrees
- Knees at 90 Degrees
- Ankles at 90 Degrees
- Back resting against backrest on chair
  - Back should be straight
  - Do not want it reclined when eating
- Feet flat on floor/footrest
- Arms can rest on table for support
- Table or tray at a height where child can see and reach all food



Solid Starts, n.d.

### Do It Yourself Footrest

- Tape or zip tie a pool noodle across the legs of the chair
  - Works best for smaller children
- Flip a box upside down
- Stack yoga blocks
- Use another chair in the house if child is in highchair or booster seat
- Stack books

## Tongue Exercises

The tongue is important for eating and speaking. When it is not stable enough it can be hard to move food around in the mouth, trigger a swallow and create precise movements for speech sounds

- Use a vibrating toothbrush when brushing teeth (helps to stimulate tongue movements)
  - If your child does not like the vibration in their mouth, use it on the leg, arm or hand first. Then work up the arm and shoulder until child will allow you to put it on their face. (may need to first do this with no vibration). Then ask the child to try their lips and then in the mouth
  - This may take days or weeks before allowing it in their mouth
- Stick tongue out of mouth to lick popsicles, suckers, or ice cream cone
  - Parents hold sucker, ice cream cone or popsicle in front of mouth, the sides of the mouth and a little bit above or below to work on tongue movements in all directions
- Put applesauce, yogurt, pudding, or other similar foods on the corners of the mouth and lips and have your child try and lick it off.
  - If your child struggles to move their tongue in the right direction looking in a mirror and doing it with can help
- Sing "la la la"
  - Try to make sure the child's chin/jaw is not moving, just their tongue. Tongue should be behind teeth
- Touch each tooth in their mouth with their tongue while counting how many teeth they have
- Lick something sticky off a spoon like peanut butter or honey
- Make silly faces
  - Tongue moves up, down, left and right
- Place cheerio on tip of tongue and have the child balance it there
  - Once they can balance it on their tongue, have them play peek-a-boo by sticking it in and out of their mouth
- Tongue click/pops
  - Have child place tongue at top of mouth and make the "n" sound. Next have them pull down to try and make the click/pop noise



Grogan, n.d.

Phone: 952.223.2506 • [www.SunnyDaysTherapy.com](http://www.SunnyDaysTherapy.com) • Email: [info@SunnyDaysTherapy.com](mailto:info@SunnyDaysTherapy.com)

Reference

Grogan, A. (n.d.) *34 oral motor exercises that you never knew you needed.* Your Kids Table.  
Toomey, K., A. (2002). *Oral Motor Play Ideas.* SOS Approach to Feeding.



# Feeding Therapy: Who Does What?



## Speech Therapy

Speech therapists work on the movements and strength of the mouth, jaw, tongue, lips, and cheeks needed to eat and drink along with breathing when eating. Some feeding skills targeted include:

- Improve chewing and biting
- Drinking out of a cup and a straw
- Control food in mouth
  - Not spilling food out the front of mouth
- Closed lips when chewing, drinking and swallowing
- Getting all the food off the spoon without help from caregiver
- Using tongue to get food off lips or roof of mouth
- Different movements or structures in the mouth that may affect feeding
  - Includes tongue and lip ties, tongue thrust, small or high roof of mouth
- Help with latching difficulties
- Noisy eating or lots of drooling

## Occupational Therapy

Occupational therapists work on accepting new foods, utensil use, and acceptable behaviors and ways to express feelings during meals and a positive environment. Some feeding skills targeted include:

- Using utensils
- Knowing what their body is telling them when eating
  - If they are hungry or full
  - Putting a safe amount of food in mouth
  - If a food is too hot or too cold when eating it
- Add foods to what your child eats
  - Talking about foods and playing with it until ready to eat
- Smaller reactions to different foods
- Good behaviors and manners when eating
- Holding a cup or bottle to drink without spilling

\*\*\*Due to the complexities of feeding we may refer your child to other specialist, so they are receiving the best care for their needs

## References

- Bennett, A. (n.d.). *An evidenced-based guide to toddler nutrition for healthcare professionals*. ToddleBox. <https://www.toddlebox.ie/hcp/the-power-of-a-positive-eating-environment/>.
- eSpecial Needs (n.d.). *Chewy tubes- Smooth*. eSpecial Needs. Retrieved January 19, 2023 from <https://www.especialneeds.com/shop/sensory-motor-skill-tools/chewy-tubes-smooth.html>
- Freepik (n.d.) *Cute baby eat complementary feeding puree in highchair*. Freepik. Retrieved January 13, 2023 from [https://www.freepik.com/free-vector/cute-baby-eat-complementary-feeding-puree-highchair\\_10541556.htm#query=highchair&position=0&from\\_view=keyword&track=sph](https://www.freepik.com/free-vector/cute-baby-eat-complementary-feeding-puree-highchair_10541556.htm#query=highchair&position=0&from_view=keyword&track=sph)
- Grogan, A. (n.d.). *34 oral motor exercises that you never knew you needed*. Your Kids Table.
- Myott, F., Hall., L., Rackley, M., & Busch, A. (2016). *Developmental Milestones Guide*. Coastal OT Connections.
- PBS Kids (2011, August 4). *Cooking with kids*. PBS Kids. <https://www.pbs.org/parents/thrive/cooking-with-kids>
- Project Nursery (n.d.). *Plates for picky eaters*. Project Nursery. Retrieved February 16, 2023 from <https://projectnursery.com/2014/12/kids-plates-for-picky-eaters/>.
- One Eco Step (n.d.). *4 month old suddenly lost interest in milk (and has not started solids)*. One Eco Step. Retrieved February 7, 2023 from <https://oneecostep.com.au/blogs/news/4-month-old-suddenly-lost-interest-in-milk-and-has-not-started-solids>.

- Ryan, M. (2019, April 8). *Feeding milestones for infants, toddlers, and children*. Butterfly Paediatric Therapy.
- Solid Starts (n.d.). *The ultimate guide to high chairs for babies*. Solid Starts. Retrieved March 7, 2023 from <https://solidstarts.com/the-ultimate-guide-to-high-chairs-for-babies/>.
- Toomey, K., A. (2002). *Oral motor play ideas*. SOS Approach to Feeding.
- United States Department of Agriculture (n.d.). *MyPlate graphics*. MyPlate. Retrieved February 21, 2023 from [https://myplate-prod.azureedge.us/sites/default/files/2020-12/myplate\\_white\\_0.jpg](https://myplate-prod.azureedge.us/sites/default/files/2020-12/myplate_white_0.jpg)
- Weaning World (2020, December 6). *Teach your baby how to drink from an open cup*. Weaning World. <https://weaningworld.com/open-cup-sipping/>.
- Winnipeg Regional Health Authority (n.d.). *Introducing different textures of baby food*. Healthy Parenting Winnipeg. Retrieved February 15, 2023 from <https://healthyparentingwinnipeg.ca/introducing-different-textures-of-baby-food/>.
- Yzquierdo, H. (2020). *Kids bored already? Try creative play with homemade play dough*. Catholic Charities Community Services. <https://www.catholiccharitiesaz.org/blog-categories/youth-development/kids-bored-already-try-creative-play-with-homemade-play-dough>