



# **The Engaged Eaters Program: Preliminary effectiveness of a caregiver- mediated intervention for feeding and mealtime challenges in autistic children**

---

Karla Ausderau, PhD

Kinesiology Department, Occupational Therapy Program

Waisman Center

University of Wisconsin – Madison



# Eating and Mealtime for Autistic Children and their Families: Integrating Practice and Research

Funding: This study was supported by the Wisconsin Alumni Research Foundation (Project ID: AAD3591 & AAH9891), University of Wisconsin Institute for Clinical and Translational Research (Project ID: AAA2543) and a core grant to the Waisman Center from the National Institute of Child Health and Human Development (P50HD105353).

Conflict of Interest. The authors declare that they have no conflict of interest.

Ethical Approval. All research was reviewed and approved as appropriate by the appropriate ethics review board as needed.



**Brittany St. John, PhD, OTR/L**  
**Assistant Professor**  
**University of Washington**

# Autism and Feeding

- Disrupted feeding patterns first described by Kanner (Kanner, 1943)
- Up to 89% have feeding challenges (Leader et al., 2020)
- Five times more likely than their peers (Sharp et al., 2013)
- Risk for medical, developmental, and social outcomes (Leader et al., 2020; Page et al., 2021; Thullen & Bonsall, 2017)



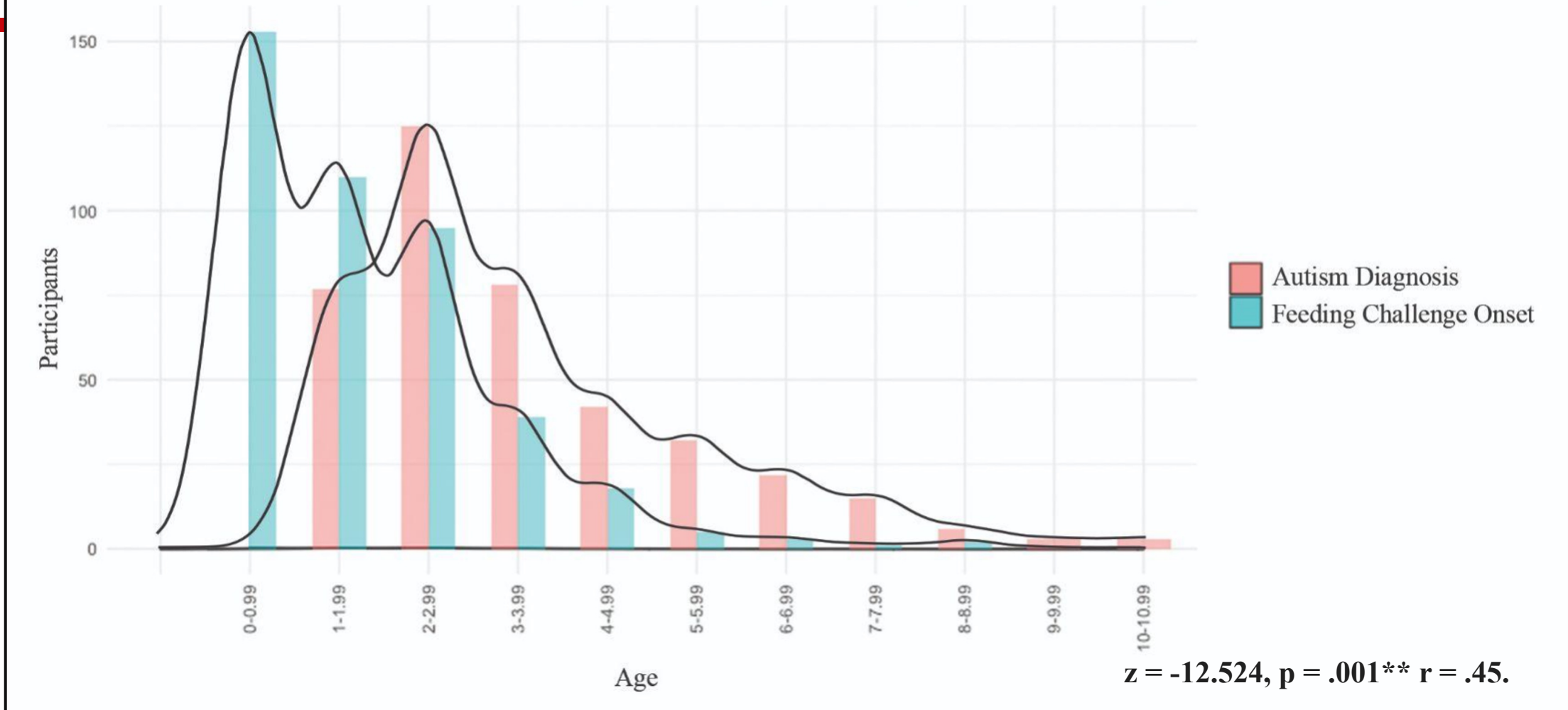


# Autism and Feeding

---

- **Complex and heterogeneous** (Ledford et al., 2018; Marshall et al., 2014; St. John et al., 2022)
- **Food selectivity, texture selectivity and food refusal** (Leader et al., 2020; Page et al., 2021; St. John et al., 2022)
- **AND....long mealtimes, oral motor, behaviors, gastrointestinal difficulties...** (Leader et al., 2020; Page et al., 2021; Thullen & Bonsall, 2017)
- **Emerge in infancy and early childhood** (Ashley et al., 2020; Emond et al., 2010; Gray et al., 2018)
- **Differential trajectories**
  - Some improve with age, stay the same
  - Clinically important group with severe and chronic challenges  
(Bandini et al.; Peverill et al., 2019; Sharp et al., 2018; Smith et al., 2020; St. John & Ausderau, 2024; Suarez et al., 2014)

Figure 1. Comparison of Distribution of Age of Autism Diagnosis and Age of Feeding Challenge Onset



# Engaged Eaters Program

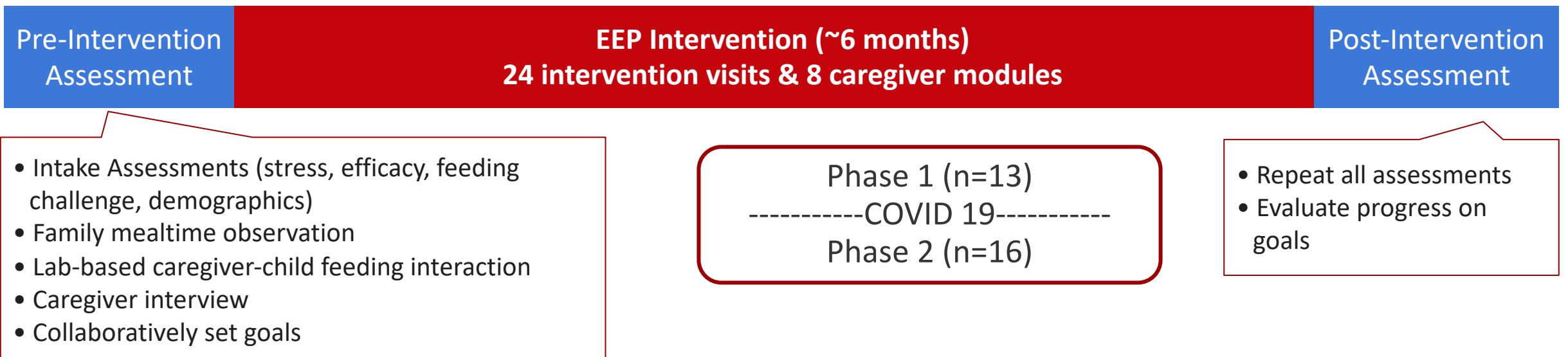




# Engaged Eaters Program

## Key Components:

- Curriculum co-design
- Ages 2 to 7 years old
- Delivered via in-person and telehealth
- Direct intervention, modeling of techniques, caregiver-therapist collaboration, & caregiver coaching
- Collaboratively set functional goals

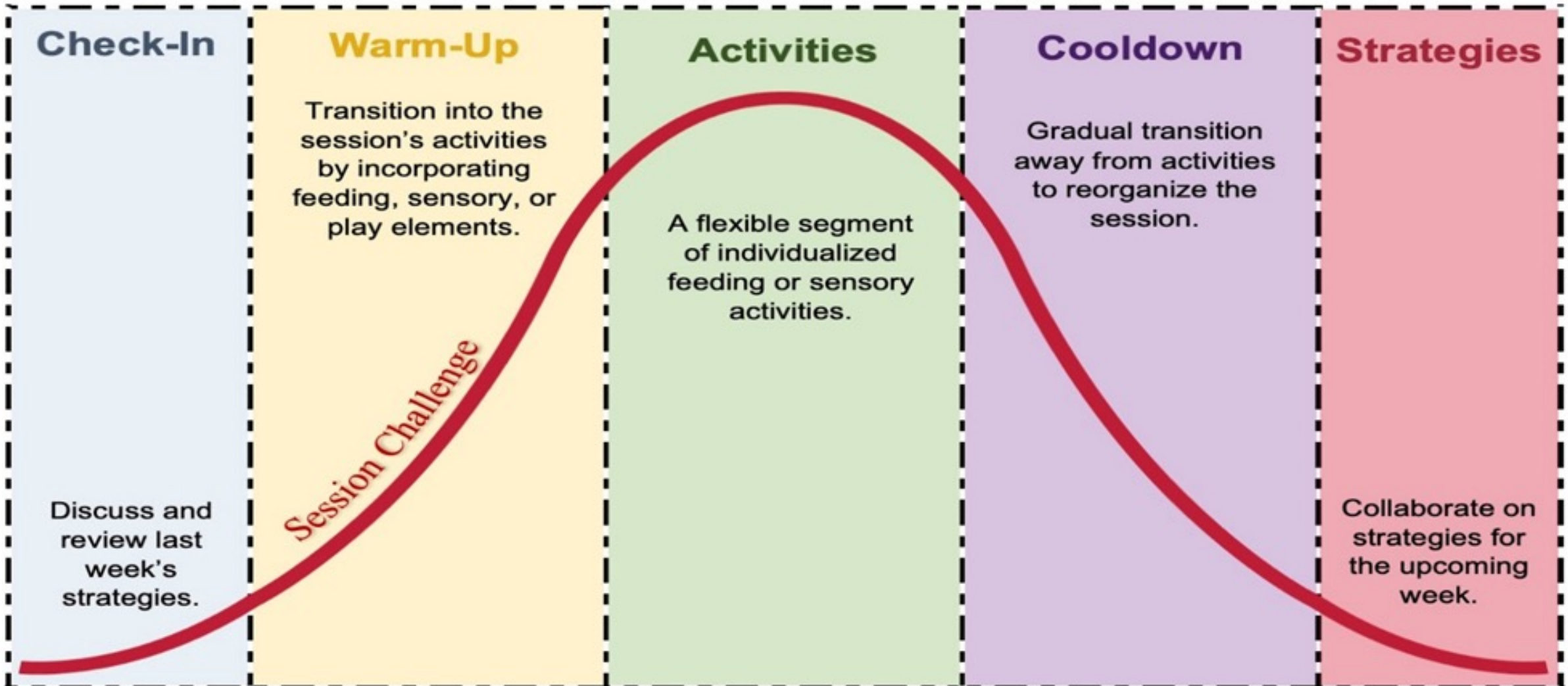




Intervention Stages	Key Components
<b><u>Introduction and Goals:</u></b> Session 1	<ul style="list-style-type: none"><li>• Overview of the EEP and expectations of participating in a caregiver-mediated intervention</li><li>• Co-develop individualized feeding goals<sup>1</sup> aligning with family priorities</li></ul>
<b><u>Rapport Building, Establish Mealtime Routines, Intervention and Strategy Integration</u></b> Sessions 2 through 6	<ul style="list-style-type: none"><li>• Relationship development among family, child, and interventionist</li><li>• Interventionist develops an understanding of individualized family mealtime routines</li><li>• Identification of family foods and cultural practices</li><li>• Initial embedment of intervention strategies<sup>1</sup> into daily routines</li><li>• Initiate Caregiver Training Modules</li></ul>
<b><u>Intervention Progress</u></b> Sessions 7 through 20	<ul style="list-style-type: none"><li>• Develop and modify weekly strategies to continue to build progress toward individualized goals</li><li>• Identify and address barriers to progress</li><li>• Deliver remaining Caregiver Training Modules and support caregiver skill development and self-efficacy</li></ul>
<b><u>Planning for Discharge</u></b> Sessions 21 through 24	<ul style="list-style-type: none"><li>• Identify key family strategies that were effective for progress</li><li>• Review of family mealtime routines and practices</li><li>• Evaluate progress toward goals and goal attainment</li><li>• Prepare for potential future mealtime challenges</li></ul>



# Intervention Session Rhythm



# Caregiver Training Modules



Caregiver Training Modules	Module Learning Objectives
<b>Module A. Setting Goals</b>	<ul style="list-style-type: none"><li>• Understand Goal Attainment Scaling</li><li>• Understand SMART goal format and how to develop measurable goals</li><li>• Develop 3 goals relating to your child and family</li></ul>
<b>Module B. Caregiver-Mediated Feeding Intervention and Family Wellbeing</b>	<ul style="list-style-type: none"><li>• Describe the purpose of a caregiver-mediated intervention</li><li>• Identify how family wellbeing may be related to mealtimes and feeding intervention</li><li>• Identify areas of mealtime that impact your own wellbeing</li></ul>
<b>Module C. Mealtime Routines</b>	<ul style="list-style-type: none"><li>• Define mealtime schedule and routine</li><li>• Identify how mealtime routine and schedule fit into the context of family's daily life</li><li>• Collaborate on potential mealtime and routine changes that may impact your child and family mealtime participation</li></ul>
<b>Module D. Sensory Processing and Mealtime</b>	<ul style="list-style-type: none"><li>• Identify sensory components of the mealtime environment and food</li><li>• Identify the child and relevant family members' sensory profiles</li><li>• Explore how an individual's sensory profile and sensory aspects the environment or food effects mealtime experiences</li></ul>

# Caregiver Training Modules



Caregiver Training Modules	Module Learning Objectives
<b>Module E. Proactive Behavioral Support</b>	<ul style="list-style-type: none"><li>• Understand key components of the behavioral approach including antecedent, behavior, and consequence</li><li>• Identify 3-5 common positive behavioral (proactive) supports that encourage enjoyable mealtime experiences</li><li>• Identify strategies to implement when difficult behaviors occur</li></ul>
<b>Module F. Feeding and Eating Skill Development</b>	<ul style="list-style-type: none"><li>• Identify typical progression of skills related to eating and drinking</li><li>• Consider how your child's oral motor skill development may impact what foods or liquids they are choosing to eat</li><li>• Consider how multiple areas of your child's development influence eating development</li></ul>
<b>Module G. Nutrition</b>	<ul style="list-style-type: none"><li>• Identify what children need to eat to grow and types of foods that support health</li><li>• Identify expectation of the amount of food your child needs to meet their growth and health needs</li><li>• Consider how your child's development may influence their nutritional intake</li></ul>
<b>Module H. Medical Challenges, Gastrointestinal Concerns, and Food Allergies or Sensitivities</b>	<ul style="list-style-type: none"><li>• Understand how reflux, constipation, and other digestive issues can influence eating patterns</li><li>• Identify behaviors that might indicate stomach or bowel challenges</li><li>• Know potential signs for food allergies or sensitivity</li><li>• Identify when a follow-up with your pediatrician and dietician may be needed</li></ul>

# EEP- Participants



	In-Home	Telehealth	Total
N	13	16	29
Chronological Age in Months (SD)	6.05 (1.89)	4.85 (1.54)	5.39 (1.78)
SRS/SRS-P Total T Score (SD)	71.83 (10.14)	73.25 (12.97)	72.64 (11.66)
Sex			
Male (%)	11 (84.62)	12 (75.0)	22 (75.86)
FEAST Total Score (SD)	67.58 (13.62)	79.81 (19.77)	74.57 (18.19)
FEAST Subscales mean item scores (SD)			
Sensory	2.39 (0.81)	3.20 (0.72)	2.85 (0.85)
Behavior	2.25 (0.39)	2.70 (0.84)	2.51 (0.71)
Oral Motor	1.67 (0.68)	1.84 (0.70)	1.77 (0.68)
Gastrointestinal	2.00 (0.71)	2.01 (0.77)	2.01 (0.73)



# EEP-Telehealth Participants

## In-home

### Race/Ethnicity:

7.7%	Black/African American
0.0%	American Indian/Alaskan Native
7.7%	Asian
92.3%	White
15.4%	Hispanic

## Telehealth

### Race/Ethnicity:

6.3%	Black/African American
12.5%	American Indian/Alaskan Native
12.5%	Asian
81.3%	White
6.3%	Hispanic




## In-home

- 84.6% Bachelor+ Maternal Education
- 61.5% >80,000 Household Income
- 92% Two Parent Household

## Telehealth


- 75% Bachelor+ Maternal Education
- 62.5% >80,000 Household Income
- 100% Two Parent Household

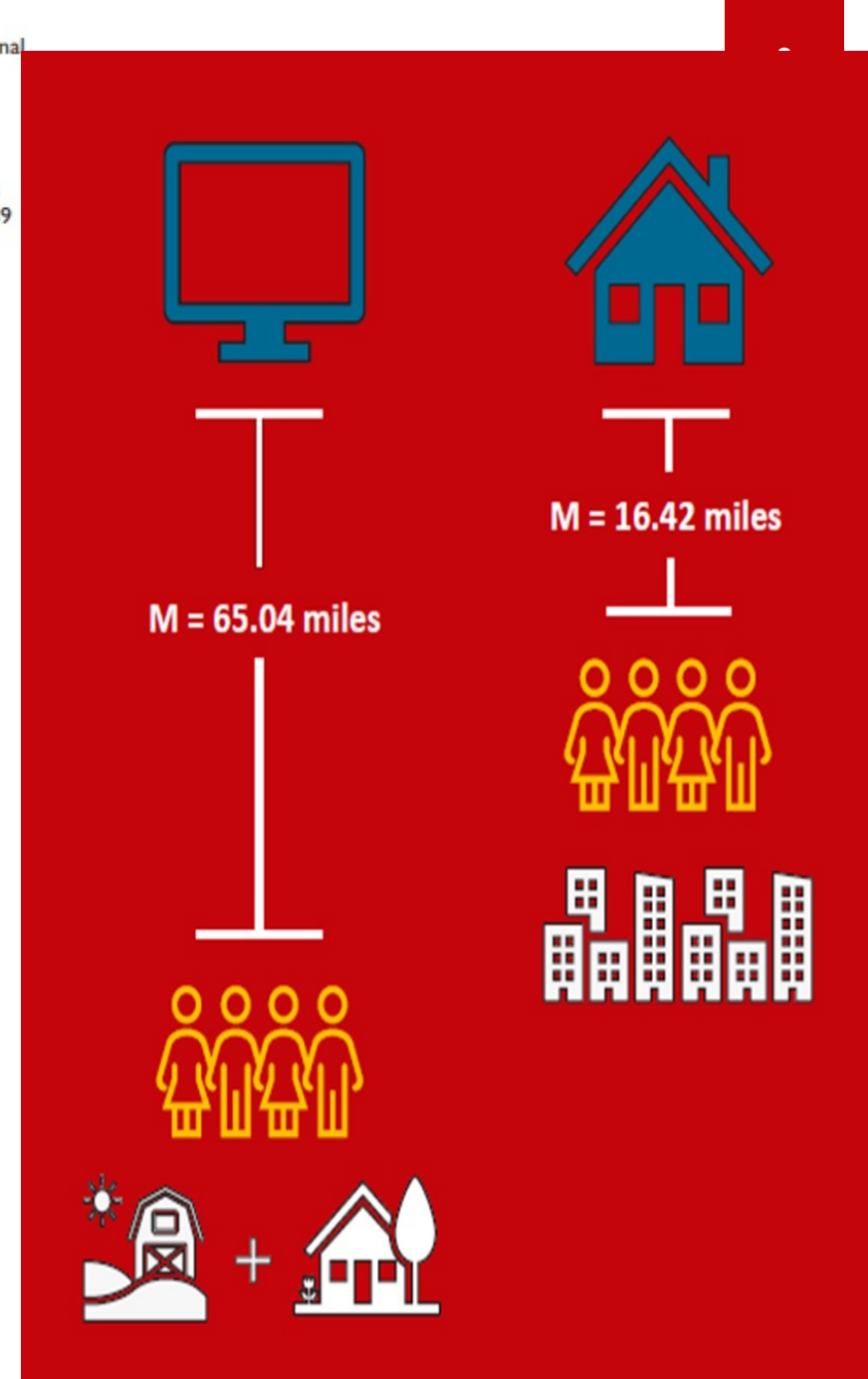
# Benefits and Challenges of a Telehealth Eating and Mealtime Intervention for Autistic Children: Occupational Therapy Practitioners' Perspectives

Libby Hladik<sup>1</sup> , Brittany St. John<sup>1</sup> , Madeline Carbery<sup>1</sup>, Megan Gray<sup>1</sup>, John R. Drew, Jr.<sup>1</sup>, and Karla K. Ausderau<sup>1</sup> 

## Engaged Eaters Interventionists

- Intervention Adaptation
  - Building Rapport & Communication
  - Clinical Reasoning Context
  - Practitioner Experiences
- Benefits
  - Increased accessibility for participants
  - Engaged caregivers as facilitators
- Challenges
  - Technology troubles and internet issues
  - Loss of physical tools and home context
  - Missing telehealth sessions
  - Child engagement on screen

OTJR: Occupational Therapy Journal of Research  
2023, Vol. 43(3) 540–548  
© The Author(s) 2023  
Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/15394492231175069  
journals.sagepub.com/home/otj  






# Goal Attainment Scaling

*Goal Attainment T-Score, Goal Attainment by Goal Category Across EEP-In Home, EEP-Telehealth, and Total Sample*

	In Home	Telehealth	Total Sample
<b>Goal Attainment T-Score</b>	n=13	n=16	n=29
Mean (SD)	60.85 (11.88)	54.96 (13.55)	57.60 (12.95)
<b>Overall Goal Attainment</b>			
Met or Exceeded All 3 Goals	n=8 (61.54%)	n=6 (37.50%)	n=14 (48.28%)
Met or Exceeded $\geq$ 2 Goals	n=12 (92.31%)	n=13 (81.25%)	n=25 (86.21%)
Met or Exceeded $\geq$ 1 Goal	n=13 (100%)	n=15 (93.75%)	n=28 (96.55%)



# Goal Categories –Goal Bank Development

---

- Exploring new foods
  - Exploring or tasting new food, not necessarily eating
- Increased food repertoire
  - Increase in diet variety, consistently eating a child sized portion of a new food
- Self-help skills
  - Feeding self-help skills, independence in self-feeding, utensils, etc
- Mealtime participation
  - Mealtime participation, targeting mealtime length, schedule, family/peer eating
- Diet and nutrition
  - Nutrition focused goal, adding fruits, vegetables, etc and portion management
- Sensory and oral motor
  - Transition between food textures, ability to manage or manipulate food in child's mouth



## Goal Attainment by Goal Category

	In Home	Telehealth	Total
<b><u>Exploring New Foods</u></b>			
Count	5	8	13
Mean attainment (SD)	0.80 (1.30)	0.50 (1.20)	0.62 (1.19)
<b><u>Increased Food Repertoire</u></b>			
Count	8	17	25
Mean attainment (SD)	1.00 (1.41)	0.59 (1.42)	0.72 (1.40)
<b><u>Self-Help Skills</u></b>			
Count	9	11	20
Mean attainment (SD)	1.33 (1.12)	0.64 (1.21)	0.95 (1.19)
<b><u>Mealtime Participation</u></b>			
Count	9	6	15
Mean attainment (SD)	0.33 (1.12)	0.17 (1.17)	0.27 (1.10)
<b><u>Diet and Nutrition</u></b>			
Count	8	5	13
Mean attainment (SD)	0.88 (1.36)	-0.40 (1.52)	0.38 (1.50)
<b><u>Sensory and Oral Motor</u></b>			
Count	3	1	4
Mean attainment (SD)	1.00 (1.00)	2.00 (--)	1.25 (0.96)

Goal Attainment is measured on a 5-point scale ranging from -2 to 2 with 0 indicating expected goal outcome. Goal attainment T-score captures the outcome across multiple goals.

# Results

- Range in goal achievement scores
- Overall, significant improvement in goal attainment  
( $t(28) = 3.16, p = .002; d = .587$ )
- 74.41% ( $n=21$ ) participants achieved average higher goal outcomes than expected
- 28/29 families achieved at least one goal
- No significant difference between in-home and telehealth groups  
( $t(26.81) = 1.25, p = 0.223$ )
- No significant difference on goal achievement based on goal category ( $\chi^2(5) = 5.88, p = .318$ )





# In summary

---

- Preliminary effectiveness for an individualized, family-centered, caregiver-mediated feeding intervention
  - Collaborative goal setting/GAS outcomes provides a standardized measurement BUT addresses heterogeneity in family priorities and child feeding challenges
  - Capacity of intervention to address a wide range of goals via in-home or telehealth models
- 
- More to explore between in-home and telehealth models
  - Family readiness for caregiver mediated interventions must be considered
  - Improvement in family and child routines outside of mealtime such getting ready for school
  - Increased parent knowledge and confidence for future feeding challenges



Questions?