Assessment and Treatment of Pediatric Feeding Problems

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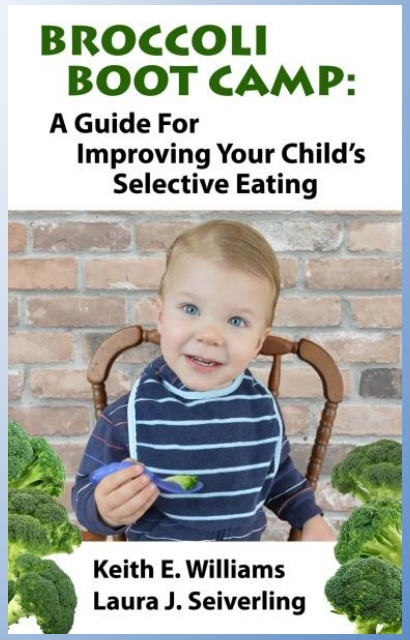
Disclosure Statement

- Dr. Seiverling is co-author of the book *Broccoli Boot Camp: A Guide For Improving Your Child's Selective Eating* which will be mentioned in the presentation
- Dr. Seiverling works at St Mary's Hospital for Children's Center for Pediatric Feeding Disorders



Learning Objectives

- Participants will learn how to assess feeding problems using both direct and indirect measures.
- Participants will be able to identify the evidence-based behavioral interventions available for treating food selectivity and refusal, packing, choking phobias, and for teaching children how to chew and self-feed.
- Participants will learn how to use behavioral skills training and general-case training to teach caregivers to implement various feeding interventions.

Prevalence of Eating Problems

- Prevalence of food selectivity or “picky eating” in typically developing children ranges from 10% to 35% (Reau, Senturia, Lebailly, & Christoffel, 1996; Wright, Parkinson, Shipton, & Drewett, 2007)

- Between 46% and 89% of children with Autism Spectrum Disorder (ASD) are reported to have some form of food selectivity (Ledford & Gast, 2006)

Do children out grow selective eating?

- It is common for children to have some selective eating phases during development

- If a child does not outgrow a selective phase, it may be problematic for the child's health and development

Why bother treating feeding problems?

- Limited diet variety may lead to malnutrition
- Eating problems can limit social interactions and social opportunities for the child and entire family
- Eating problems may lead to stigmatization
- Treatment involves reducing a child's aversion to novel experiences and increasing his or her compliance with instructions

Why do feeding problems develop?

- Feeding problems may include medical, oral motor, and behavioral components (Piazza, 2008)

Common Medical Issues Associated with Feeding Problems

- Gastroesophageal Reflux
- Food Allergies
- Motility Problems
- Constipation
- Diarrhea
- Dysphagia

- Prior to implementing a feeding intervention, it is important to rule out medical problems that may be associated with the child's feeding problem

Assessment of Feeding Problems

- Indirect Assessments
  - Questionnaires, food inventories
- Direct Assessments
  - Direct observation using systematic assessments, experimental analyses

Indirect Assessments

- Questionnaires can help you obtain a standardized set of information
- Most questionnaires discussed have been standardized on samples of children with eating problems
- Questionnaires can help guide your assessment and initial intake with caregivers

Parent Mealtime Action Scale (PMAS)

- Parent Mealtime Action Scale (PMAS) assesses:
  - Behaviors parents exhibit during mealtimes with their children
  - The frequency that the parents eat certain foods (e.g. fruits and vegetables)
  - How often these foods are served
- Patterns of parent mealtime action may be associated with their children's diet and weight status

(Hendy, Williams, Camise, Eckman, & Hedemann, 2009)

Some PMAS questions…

During a typical week, how often do you show each mealtime action?

Please circle the appropriate number after each action

Parent Mealtime Actions		1 = never, 2 = sometimes, 3 = always		
1.	You made eating the food a game or fun for the child	1	2	3
2.	You ate the same foods as those offered to the child	1	2	3
3.	You sat with the child, but did not eat	1	2	3
4.	You let the child eat whatever he/she wanted	1	2	3
5.	You let the child flavor the food however he/she wanted	1	2	3
6.	You gave the child a favorite food as a reward for good behavior	1	2	3
7.	You offered the child a toy or favorite activity as a reward for eating	1	2	3
8.	You offered the child a special dessert as a reward for eating	1	2	3
9.	You let the child substitute a food for one he/she liked	1	2	3
10.	You let the child choose which foods to eat, but only from those offered	1	2	3
11.	You prepared a special meal for the child, different from the family meal	1	2	3
12.	You stopped the child from eating too much	1	2	3
13.	You told the child how much you liked the food	1	2	3
14.	You told the child how good the food will taste if he/she tries it	1	2	3
15.	You told the child that his/her friends or siblings like the food	1	2	3

Brief Assessment of Mealtime Behavior in Children (BAMBIC)

- Administered the Brief Autism Mealtime Behavior Inventory (BAMBI) in a population of children referred to a pediatric feeding clinic

- Scale did not differentiate among children with ASD, children with other special needs, and children without special needs in this type of sample

- Revised and renamed the scale to widen the clinical usefulness of the measure

(Hendy, Seiverling, Lukens, & Williams, 2013)

Some example BAMBIC questions…

Think about mealtimes with your child over the past 6 months. Rate the following items according to how often each occurs, using the following scale:

Never/Rarely Seldom Occasionally Often At Almost Every Meal

1 2 3 4 5

Then, circle **YES** if you consider the item to be a problem or **NO** if you think it is not a problem.

	How often did it occur?	Do you consider this a problem?
My child turns his/her face or body away from food.	1 2 3 4 5	YES NO
My child is aggressive during mealtimes (hitting, kicking, scratching others).	1 2 3 4 5	YES NO
My child displays self-injurious behavior during mealtimes (hitting self, biting self).	1 2 3 4 5	YES NO
My child is disruptive during mealtimes (pushing/throwing utensils, food).	1 2 3 4 5	YES NO
My child closes his/her mouth tightly when food is presented.	1 2 3 4 5	YES NO
My child is willing to try new foods.	1 2 3 4 5	YES NO

The About Your Child's Eating (AYCE) scale

- Normed on 763 parents of physically healthy and chronically ill children between 8 and 16 years

- Three factors identified: Child Resistance to Eating, Positive Mealtime Environment, and Parent Aversion to Mealtime

(Davies, Ackerman, Davies, Vannatta, & Noll, 2007)

Example questions of the AYCE scale

1	2	3	4	5
Never	Once in a while	Sometimes	Often	Nearly every time
1. My child hates eating.				
1	2	3	4	5
2. I feel like a short-order cook because I have to make special meals for my child.				
1	2	3	4	5
3. Meal times are among the most pleasant in the day.				
1	2	3	4	5
4. I feel that it is a struggle or fight to get my child to eat.				
1	2	3	4	5
5. My child refuses to eat.				
1	2	3	4	5
6. I worry that my child will not eat right unless closely supervised.				
1	2	3	4	5
7. My child is a picky eater.				
1	2	3	4	5
8. The family looks forward to meals together.				
1	2	3	4	5
9. My child enjoys eating.				
1	2	3	4	5

Food Preference Inventories

- A list of common foods that can be used to determine which foods are eaten by both the child and the family

- Helpful tool for assessing diet variety, selecting target foods, and can also be used as an outcome measure

Food Preference Inventory

Please indicate how often you and your child typically eat the following foods.

D = Daily W= Weekly M = Monthly 0 = Never

Food	Child	You	Food	Child	You
Milk (white or flavored)			Bacon		
Yogurt			Beef (roast, steak)		
Cottage Cheese			Chicken nuggets/fingers		
Cheese (any type)			Chicken, turkey		

Experimental Analyses

- Najdowski, et al. (2008) trained caregivers to conduct experimental functional analyses of inappropriate mealtime behavior (IMB)

- Conditions included no-interaction, attention, control, and demand

- Rate of IMB was highest in the demand condition for all participants suggesting that access to escape functioned as reinforcement for IMB

Interventions…how to go from

HERE **TO** **HERE**

Food Selectivity

- A child's insistence on eating a narrow range of foods on a consistent basis (Williams & Foxx, 2008)
- Often associated with:
  - An unwillingness to try new foods
  - Insufficient intake and variety to maintain a healthy nutritional status
  - Dependence upon nutritional supplements

What has research shown about food selectivity?

- Food selectivity in children affects parent behavior
- Parent Mealtime Action Scale (Hendy et al., 2009)
  - Children do not eat what their parents serve, parents serve what their children eat
  - Giving children special meals is related to a proneness for overweight and decreased diet variety

Does tasting foods get easier over time?

- Researchers tracked the number of tastes required before 6 children with food selectivity ate a small serving of a food in probe meals (i.e. meals in which the child was not required to taste the food)

- The number of tastes decreased as more foods were added to a child's diet

- It gets easier!!!

(Williams, Paul, Pizzo, & Riegel, 2008)

What we know about increasing diet variety and developing taste preferences…

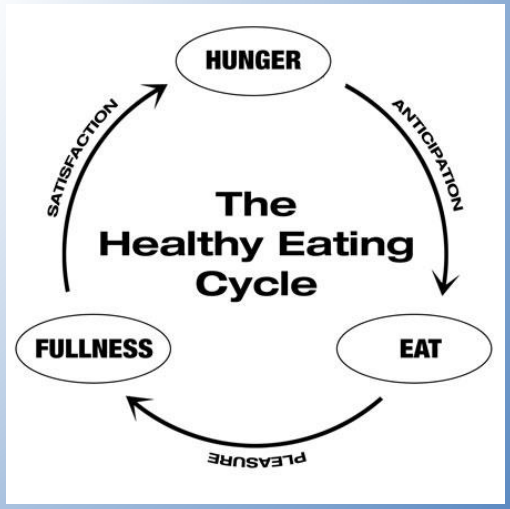
- To develop a preference for a food, the food must be *tasted,* not looked at, sniffed, or licked
  - And tasting new foods gets easier over time as new foods are added into one's diet!
- Teaching children to play with food is often messy and a waste of time
- Tastes must occur repeatedly, once or twice is often not enough

Antecedent approaches for treating food selectivity

- Structuring meals/snacks and avoiding special meals
- Simultaneous presentation
- Behavioral Momentum

Structuring meals/snacks and avoiding special meals

- Children's appetites often improve if they start eating on a schedule (develops hunger-satiety cycle)
- Serve meals/snacks in kitchen or dining room
- Limit the length of meals and snacks
- Do not allow grazing
  - Many of the snack foods are high in caloric density so it does not take much to affect appetite
- Do not give alternative meals



Adjustments we often make for children with Autism Spectrum Disorder

- Avoid feeding from the original container
- Rotate through dishes, cups, and utensils
- Visual clocks can sometimes be helpful

Simultaneous Presentation

- Mix new foods into preferred foods in tiny amounts, slowly changing the ratio of new to preferred food
  - E.g., add ground fruit to yogurt or applesauce
- Place new and preferred food on the same utensil
- Ahearn (2003)
  - 14-year-old boy with ASD with mild selectivity
  - Increased consumption of non-preferred vegetables by adding simultaneous presentation of preferred condiments

Behavioral Momentum Strategies

- Present a demand that is likely to be performed by the child before asking the child to engage in the less likely behavior of eating a new or non-preferred food.
  - Types of high-probability responses depend on the child
    - E.g. accepting an empty spoon (Patel et al., 2007)
    - E.g. accepting bites of a preferred food (Gentry & Luiselli, 2009)
    - E.g. asking the child to engage in non-feeding related tasks (Dawson et al., 2003)

Common multicomponent interventions for treating food selectivity

- Differential reinforcement
- Stimulus Fading
- Escape Prevention/Extinction
  - (Freeman & Piazza, 1998; Anderson & McMillan, 2001; Najdowski et al., 2003; McCartney et al., 2005; Ahearn et al., 2001; Ahearn, 2002)

Contingent Reinforcement Clip

Sequential Presentation

- Plate A-Plate B interventions
- Present two plates and set a timer for 10 to 20 mins
  - Plate A: contains tiny specks of 2-3 new foods
  - Plate B: contains bites of 2-3 preferred foods
- Child instructed to eat a bite from Plate A before eating a bite from Plate B and drinking a preferred beverage
- Over time, bite sizes of novel foods are increased
- Access to preferred foods restricted prior to Plate A-Plate B meals

“Plate A-Plate B” interventions

- 16-year-old with ASD in residential facility with limited diet variety and history of self-injurious behavior and aggression
  - Sequential presentation in the absence of escape extinction

(Pizzo, Coyle, Seiverling, & Williams, 2012)

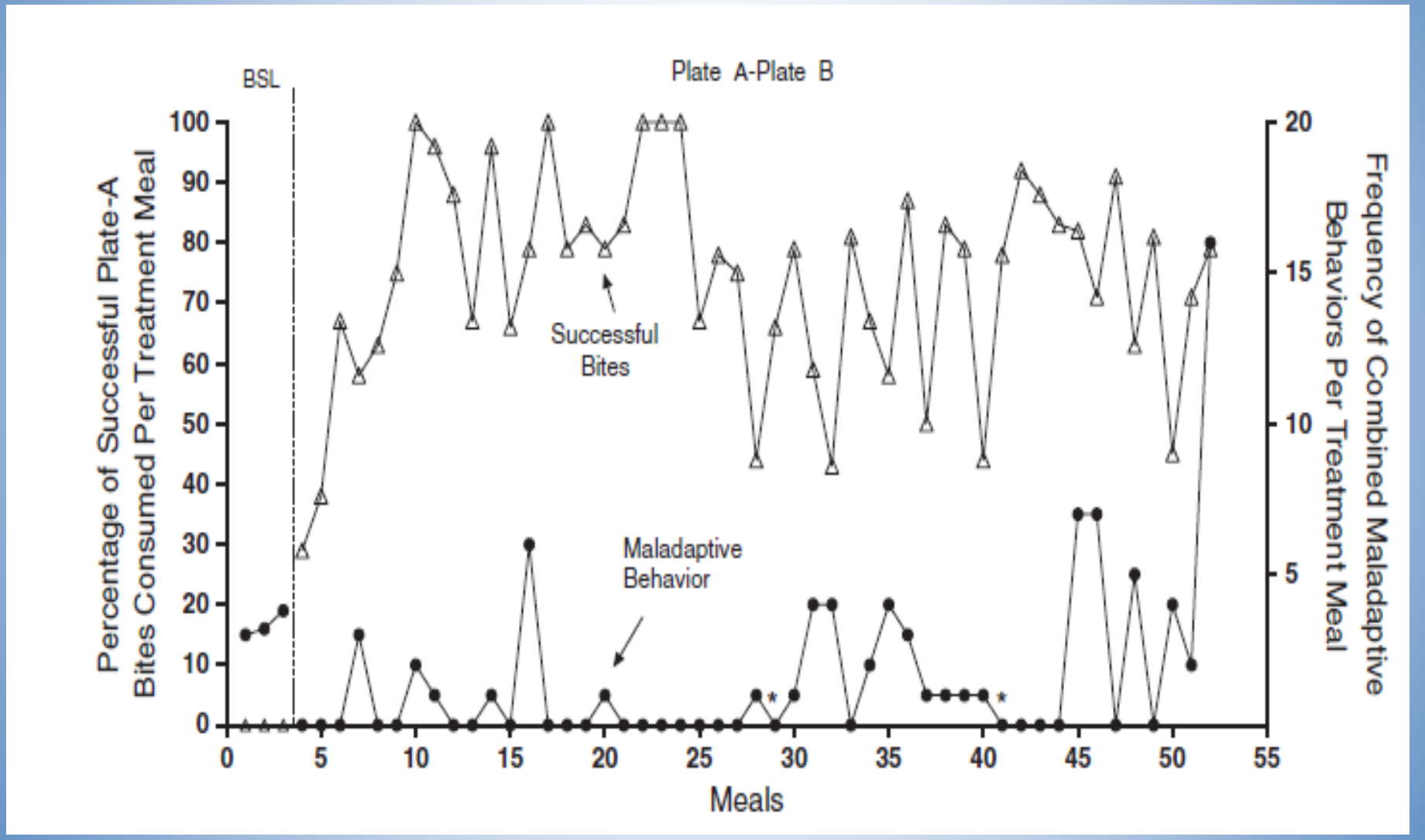
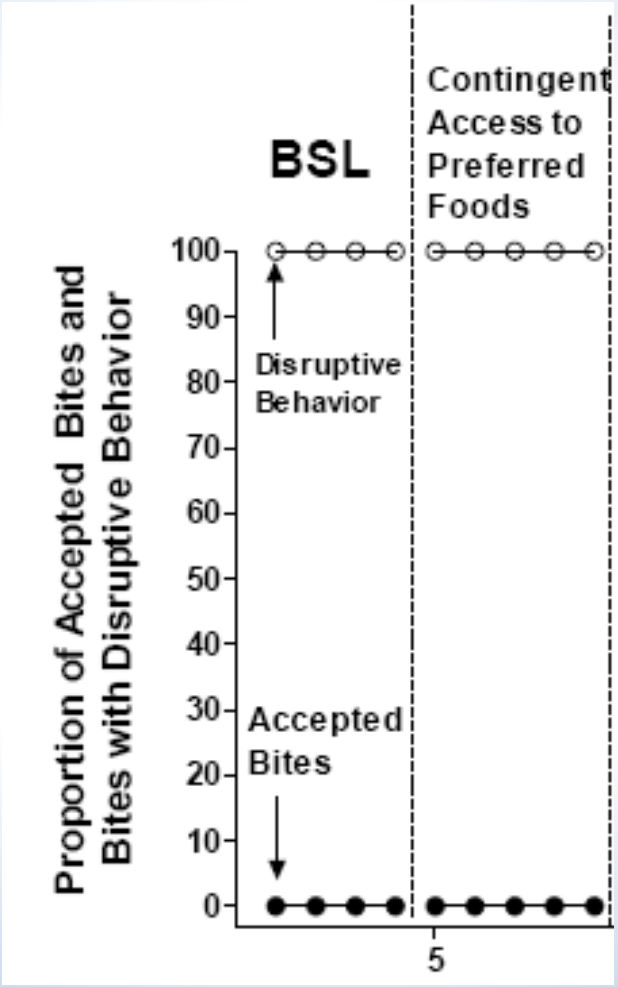

BSL
Plate A-Plate B
Percentage of Successful Plate-A Bites Consumed Per Treatment Meal
Frequency of Combined Maladaptive Behaviors Per Treatment Meal
Successful Bites
Maladaptive Behavior
Meals
0
10
20
30
40
50
60
70
80
90
100
5
15
25
35
45
55

Plate A-Plate B clip

“Plate A-Plate-B” Case Study

- 3-year-old boy with ASD who was reported to eat 17 foods (primarily starches) participated in one week intervention at pediatric feeding clinic
  - History of chronic constipation and GERD

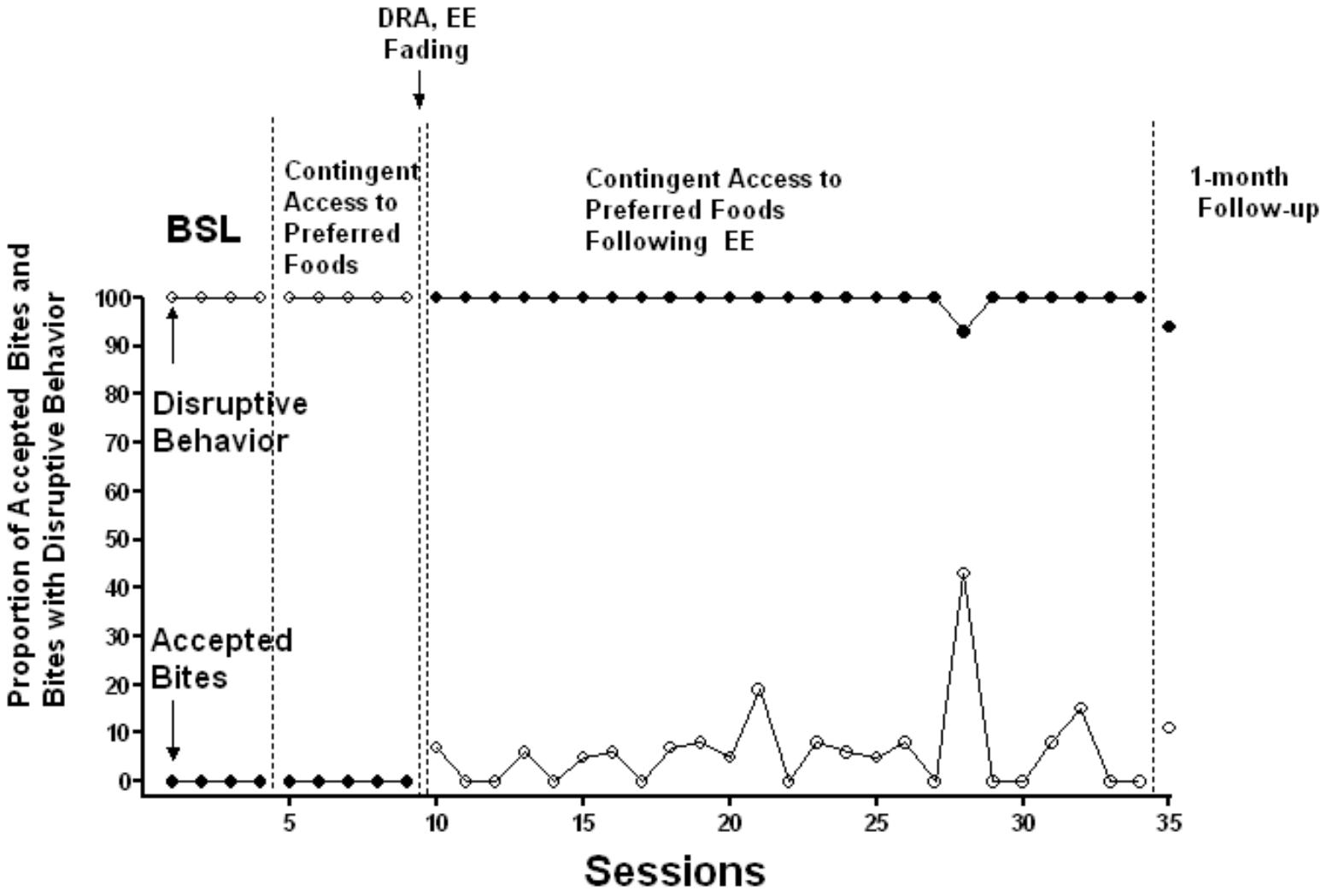
(Seiverling, Kokitus, & Williams, 2012)


BSL
Contingent Access to Preferred Foods
Proportion of Accepted Bites and Bites with Disruptive Behavior
100
90
80
70
60
50
40
30
20
10
0
Disruptive Behavior
Accepted Bites
5

DRA, EE, and Fading

Series of single-bite taste sessions occurred after first 5 treatment meals

- Jeremy was required to accept a single bite to access a 3 min break outside of the treatment room
- Initial taste sessions, pea-sized bites of preferred food presented and then target foods were presented
- Bite sizes of target foods gradually increased


DRA, EE
Fading
BSL
Contingent
Access to
Preferred
Foods
Contingent Access to
Preferred Foods
Following EE
1-month
Follow-up
Proportion of Accepted Bites and
Bites with Disruptive Behavior
Disruptive
Behavior
Accepted
Bites
100
90
80
70
60
50
40
30
20
10
0
5
10
15
20
25
30
35
Sessions

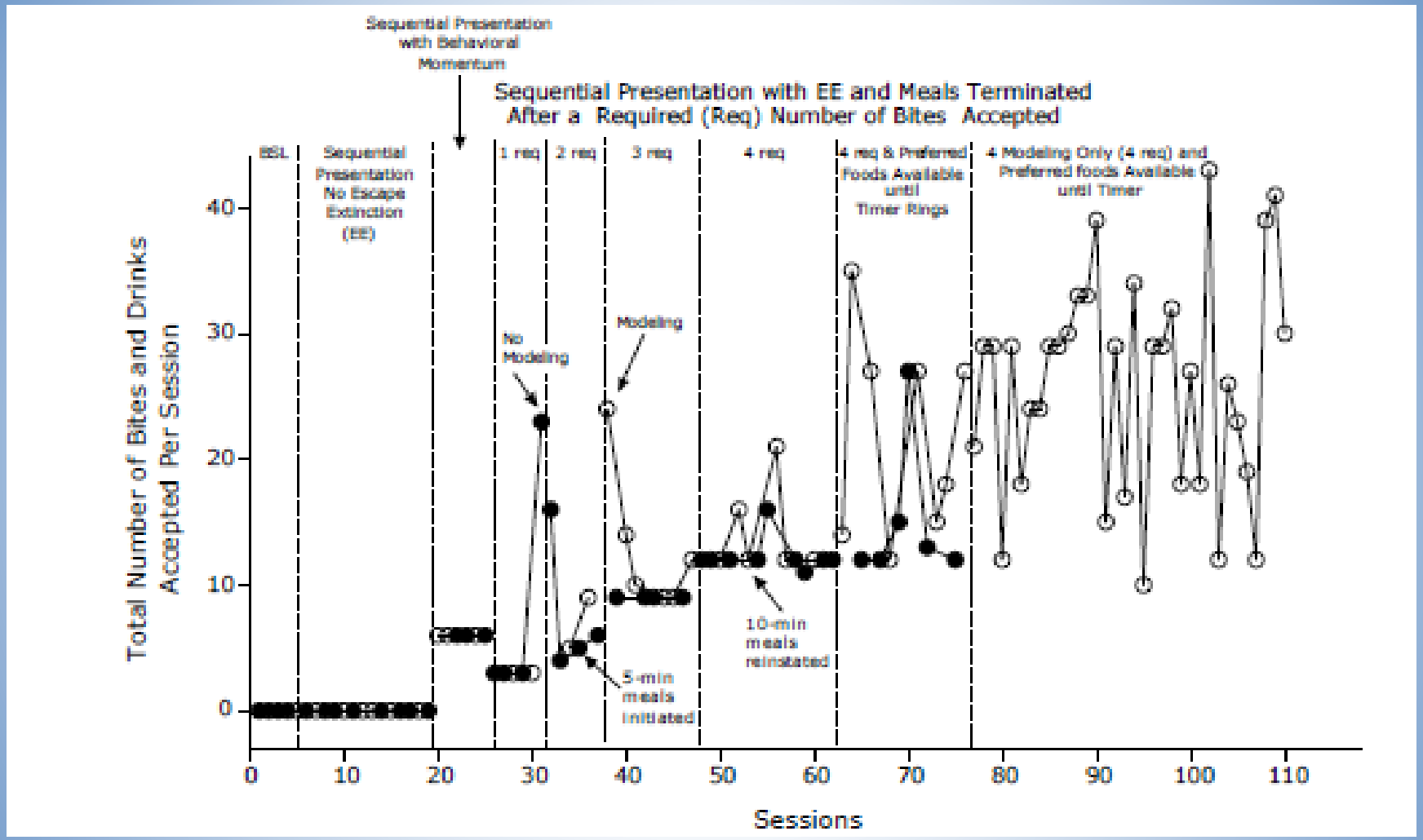
Modeling

- Caregivers who DO NOT model drinking soda, eating sweets, and salty snacks regularly are more likely to have children with healthier diets and weight (Hendy et al., 2009)

Modeling

- Examined the effects of the Plate A-Plate B intervention with and without feeder modeling on one child's acceptance of new foods
  - Typically developing 4-year-old boy with age-appropriate imitation skills
  - Caregivers reported 11 foods in his pre-treatment diet

(Seiverling, Harclerode, & Williams, 2014)


Sequential Presentation with Behavioral Momentum
Sequential Presentation with EE and Meals Terminated After a Required (Req) Number of Bites Accepted
BSL
Sequential Presentation No Escape Extinction (EE)
1 req
2 req
3 req
4 req
4 req & Preferred Foods Available until Timer Rings
4 Modeling Only (4 req) and Preferred foods Available until Timer
No Modeling
Modeling
10-min meals reinstated
5-min meals initiated
Total Number of Bites and Drinks Accepted Per Session
Sessions
0
10
20
30
40
50
60
70
80
90
100
110

Escape Extinction

- Escape extinction involves not removing feeding demands contingent on refusal and inappropriate behaviors
  - Typically entails requiring the child to eat *a single bite* or small portion of food
- Successful interventions often involve some form of escape extinction

Food Selectivity Interventions that Use Escape Extinction

- Implementing single-bite taste sessions
  - Paul, Williams, Riegel, & Gibbons, 2007; Pizzo, Williams, Paul, & Riegel, 2009; Seiverling, Williams, Sturmey, & Hart, 2012)

Single-bite taste sessions

- Used to treat two children with extreme selectivity
- Intervention consisted of two components: probe meals and taste sessions

(Paul, Williams, Riegel, & Gibbons, 2007)

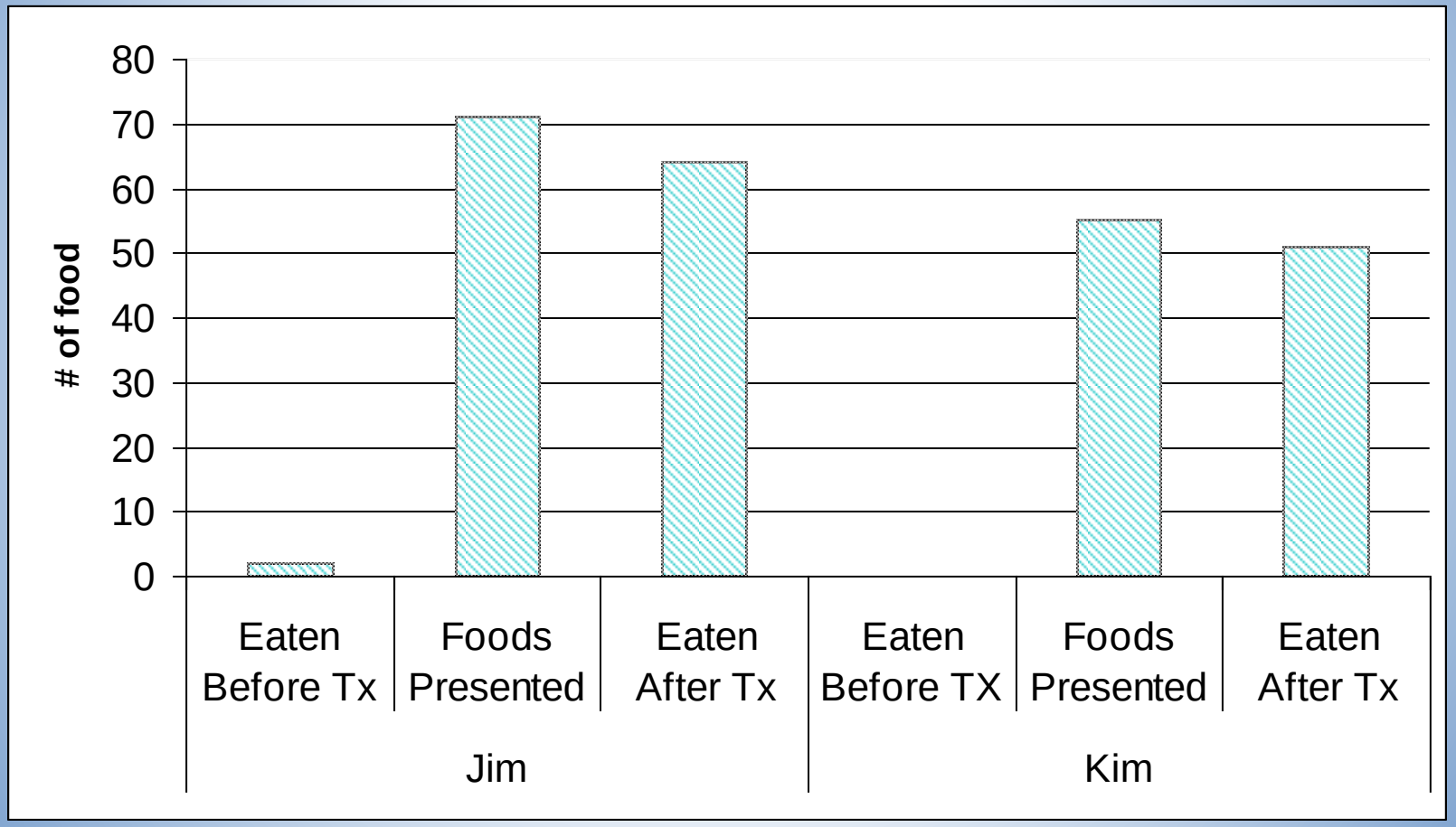
Taste Sessions

- Each bite is presented until eaten, inappropriate behavior is ignored, and elopement is blocked
- After *each* bite is accepted, the child is given a break
- Stimulus fading is used to make it easier for the child; the initial bite size for each food is pea-sized or even smaller

Probe Meals

- Ten minute probe meals are used to measure the progress of the intervention over time
- The child is offered novel foods and praise is given for taking bites, but the child is not required eat any of the food presented
- No attention is provided for inappropriate behavior

Variety increased and these increases were maintained

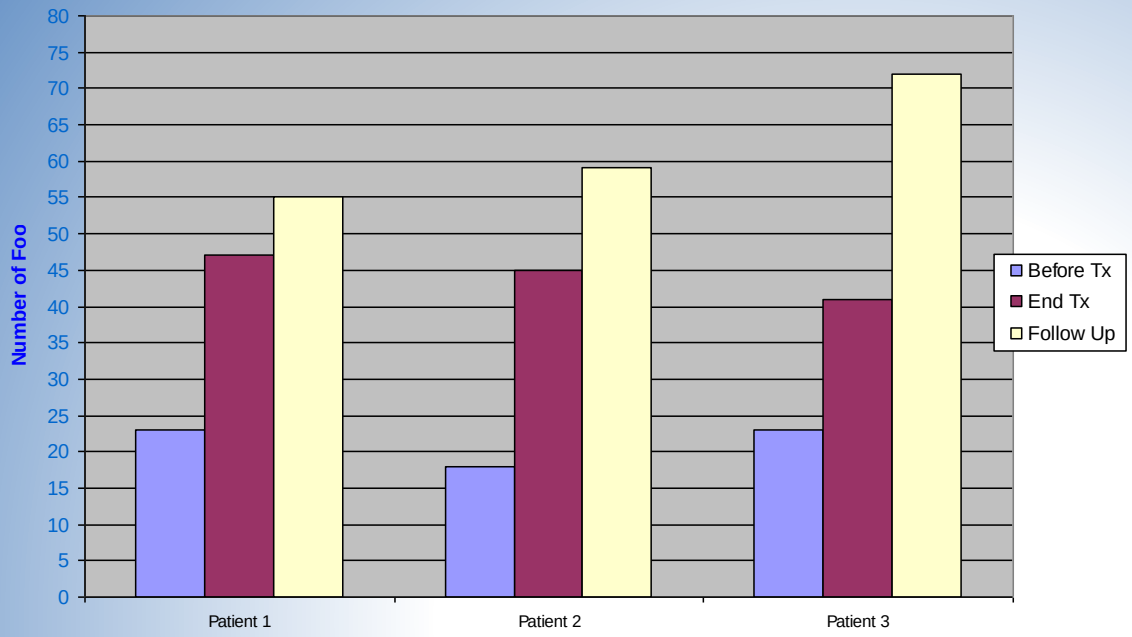


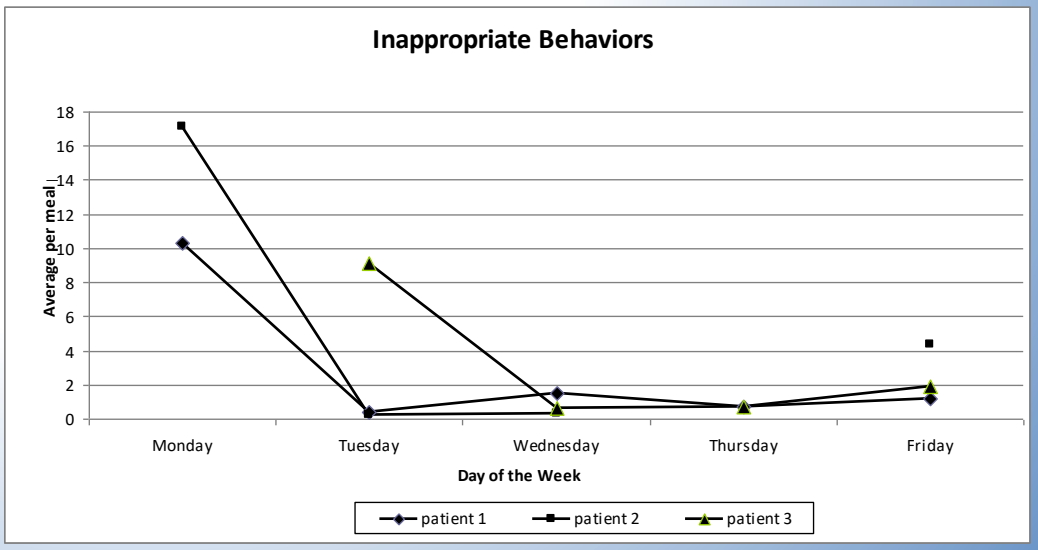
Jump Start Exit Criterion

- In the original study, two children were exposed to 13 and 15 days of intensive treatment
- Same intervention implemented across 4 to 5 days
- Participants
  - 4-year-old boy with ASD
  - 5-year-old boy old boy with reflux
  - 9-year-old boy with ADHD

(Pizzo, Williams, Paul, & Riegel, 2009)

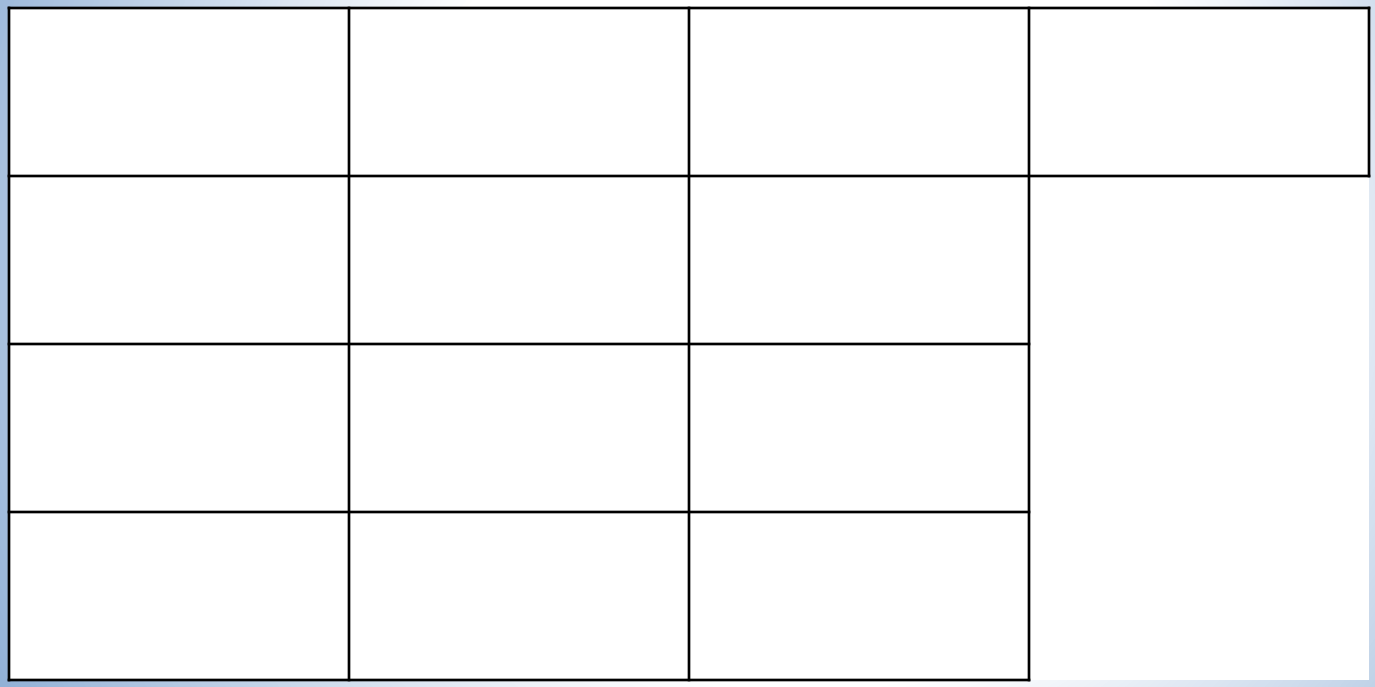
Foods Eaten


Number of Foo
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
Patient 1
Patient 2
Patient 3
Before Tx
End Tx
Follow Up


Inappropriate Behaviors
Average per meal
18
16
14
12
10
8
6
4
2
0
Monday
Tuesday
Wednesday
Thursday
Friday
Day of the Week
patient 1
patient 2
patient 3

A variant of escape extinction using a visual cue

_____’s eating sheet



The use of visual cues….

- Often used with children with ASD to promote independence and to decrease problem behavior associated with schedule changes
  - Carnahan, Musti-Rao, and Bailey (2009)

- Reinforcement criterion made clear for the learner
- Can also be used as a token economy
- Often helpful to increase reinforcement criterion

Some final comments regarding taste sessions….

- Reduce response effort
- Try first introducing foods similar in taste, color, and texture to foods in the current diet
- The size of the taste does not seem to matter, small is okay—even if it is just a few molecules
- If applicable, use foods previously eaten or even preferred foods
- Move to new brands of familiar foods
- May want to start with low textures

What about food selectivity in older children?

- Behavioral Contracts

Contingency Contract

Child: _____

Parent: _____

Target Behaviors:

1. Eating 5 bites of a new food each day

2. Drinking 1/4th cup of two new drinks per week.

How well does the behavior have to be performed? (Daily? Weekly, X amount of times per week)

- In order for X to receive his daily reward, he needs to eat 5 bites of a new food (from his list of new foods) per day.
- In order to receive his weekly reward, he needs to eat 5 bites of a new food (from his list of new foods) for four out of five days of the week and drink 1/4th cup of two new drinks per week.

REWARD

Who will provide the reward: His mother

What will the reward be:

X's daily reward will be access to x-box, Nintendo, cartoon network, or his I-pad.

How much? 30 min

X's weekly reward will be access to either a prize he is working for, a friend can come over to his house, going to a movie, etc. His weekly reward will be specified at the beginning of the week.

What will occur if the reinforcement criterion is not met for some or all of the behaviors? He will not receive access to his 30 min daily reward for not meeting his daily requirement. He will not receive his weekly reward if his weekly criterion is not met.

Child Signature: _____

Parent Signature: _____

Feeding Chart

Name: _____

Week: _____

Days of the Week	Number of Bites eaten	Daily Reward	Reward received (yes/no)	Preference Rating
Monday New food: _____ Drink: _____		X-box		Did not Like Neutral Liked 1 2 3 4 5 6 7 8 9 10
Tuesday New food: _____ Drink: _____		Nintendo		Did not Like Neutral Liked 1 2 3 4 5 6 7 8 9 10
Wednesday New food: _____ Drink: _____		Cartoon Network		Did not Like Neutral Liked 1 2 3 4 5 6 7 8 9 10
Thursday New food: _____ Drink: _____		Cartoon Network		Did not Like Neutral Liked 1 2 3 4 5 6 7 8 9 10
Friday New food: _____ Drink: _____		IPAD		Did not Like Neutral Liked 1 2 3 4 5 6 7 8 9 10
WEEKLY REWARD: _____ **Weekly criterion met:** Yes or No				

Suggestion

- Provide as much child choice as possible!
- Children often like to be in control
- You can allow them to choose the new foods that they try
- You may need to provide restricted choice
- And, you have to allow choices that you can live with!

Interventions for Total Food Refusal

- Perhaps the most severe feeding problem
- Child refuses to eat enough to sustain growth
- Often accompanied by inappropriate mealtime behavior
- Often have at least one medical condition, most often GERD
- Problems with appetite are common
- Often dependent upon tube feedings or oral supplements

Treatment for Total Food Refusal

- Typically involves hunger induction, escape extinction for refusal and inappropriate behavior, and positive reinforcement for acceptance
- Often also involves a structured meal and snack schedule, and gradually increasing response effort

(Williams, Field, & Seiverling, 2010)

Interventions for Chewing

- Teaching a child how to chew can be challenging
- A child's failure to chew may be due to:
  - Oral motor deficits
  - Aversion to a certain texture (e.g. will chew certain textures, but not others)
  - A combination of both

- There is an emerging literature in our field on how to teach chewing (Volkert et al., 2014; Eckman et al., 2008; Volkert et al., 2013)

Chewing

- Is it documented that the child has oral motor problems or neuromotor problems (e.g. weak muscle tone)?
  - May need to reach out to speech language pathologist or physician
  - Does the child have the physical abilities to chew?
  - Is the child able to imitate or follow 1-step instructions?

Chewing

- How do chewing skills develop?
  - Typically parents present soft and easily dissolvable foods between 7-9 months
  - Children typically start to eat table food diet by 24 months
  - Develop mature chewing skills by age 4 years

(Volkert et al., 2014)

Teaching a child to chew

- Often involves teaching the following skills
  - Tongue lateralization
  - Lip control
  - Chewing practice (i.e. biting up and down)
  - Texture fading

(Williams & Foxx, 2007)

Tongue Lateralization

- Ability to move the tongue from side to side inside the mouth
  - Some children do not lateralize at all!
  - Put a small amount of preferred food in the corner of the child's mouth and instruct the child to touch or lick it
  - May need to start by just having the child stick out his or her tongue
  - May need to use a nuk brush or spoon to push the child's tongue to the side at first
  - Provide reinforcement!

Tongue Lateralization Clips

Lip Control

- Ability to keep the mouth closed when eating and drinking (helpful when moving food around in the mouth)
  - May be improved by teaching a child to drink from a cup or straw
  - Present a small drink (i.e. 5 ccs) from an open cup or cup with a straw.
  - Provide reinforcement!
  - Gradually increase the size of the drink

Chewing Practice

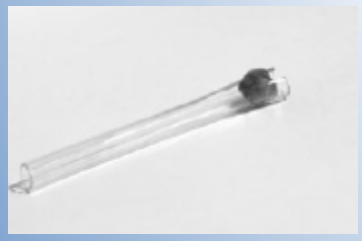
- Provide the opportunities to bite and produce up and down movements of chewing
  - Start with dry, easily dissolvables (e.g. cheese doodles, veggie sticks) that provide feedback as the child chews
  - Place a tiny bite onto the child's teeth until the child bites it (followed by reinforcement!)
  - Gentle physical prompts (pushing upward on the child's chin and release) or modeling may help
  - Move foods back onto the child's molars as the child bites down without inappropriate behavior
  - Increase from 1 bite to 2, 3, etc. before reinforcement
  - Gradually increase bite sizes

Biting Down Clip

Tools may be helpful

- It's easy to get your fingers bitten!
- Chewy Tubes are oral motor devices may be helpful to use when initially placing food onto the child's teeth
- Can purchase or make your own

- We tend not to work on chewing if a child exhibits high levels refusal with purees
  - The refusal is likely to interfere with learning the skill of chewing



Volkert et al. (2014)

Texture fading

- May be helpful to do texture fading if the child only eats purees
- Solids are usually classified as
  - Stage 1 and Stage 2 baby food (purees)
  - Stage 3 baby foods (junior texture)
  - Ground
  - Chopped fine
  - Regular

Texture fading (con't)

- Ways to increase texture
  - Add baby cereal, wheat germ, crushed graham cracker
  - Use a food processor to alter regular textured food

- Often follow fading progression such as the one below:
  - 100% pureed
  - 75% pureed/25% junior
  - 50% pureed/50% junior
  - 25%pureed/75% junior
  - 100% junior

Interventions for Packing

- Packing involves holding food in the mouth for protracted durations (generally longer than 30 seconds)
- For some children, packing can be an avoidance behavior, similar to crying or head-turning
- For other children, packing is the result of inadequate oral-motor skills
  - Increased response effort of eating the higher texture food

Simultaneous presentation, differential reinforcement, & response cost to treat packing

- Nine year-old girl with ASD who packed bites of new or non-preferred foods regardless of texture
- Response cost was implemented by presenting a preferred video for 30 s prior to the first presented bite and removing the video if packing occurred
- Video was returned following a mouth clean

(Buckley & Newchok, 2005)

Additional interventions for packing

- Differential reinforcement for clean mouth
- Using a liquid wash or a smooth food chaser
- Alternating bites and drinks to prevent packing
- Lowering the texture of the food to prevent packing
- Re-distribution

Interventions for Self-feeding

- There is an emerging literature in our field on how to improve self-feeding
  - Rivas et al. (2014)
  - Vaz, Volkert, & Piazza (2011)

- It is difficult to work on self-feeding and refusal at the same time
  - Often, if a child's food acceptance improves, so does his or her willingness to self-feed

Self-feeding

- Failure to self-feed can take many forms
  - Reliance on caregivers to feed all bites and drinks
  - Refusal to use utensils (e.g. will only finger feed)
  - Refusal to drink from a cup (e.g. only drinks from a baby bottle)
  - Refusal to self-feed in order to avoid eating
  - Refusal due to skill deficits required for self-feeding
    - May be helpful to consult with occupational therapist to determine if adaptive equipment will be helpful

(Williams & Foxx, 2007)

Self-feeding

- Common prompting strategies
  - Least-to-most prompting
  - Graduated guidance

Self-feeding

- Least-to-most prompting
  - Gestural cue: Pointing to the food
  - Verbal prompt: “Take your bite!”
  - Partial physical prompt: Placing the child’s hand on the utensil or cup
  - Full physical prompt: Using hand-over-hand physical guidance to ensure the child self-feeds

Self-feeding clip

Self-feeding

- Graduated Guidance: Adjustment in prompting level from moment to moment, according to the child's performance
  - Full graduated guidance: Hands in full contact with the child's hand and only use as much guidance as necessary
  - Shadowing: Keep hands within an inch of the child's hands

Tips for Self-feeding

- Set families up with a feasible plan!
  - Require the child to self-feeding for a small portion of the meal to start (e.g. first 5 mins)
  - Alternate! Have the child self-feed and the caregiver then present a bite
  - Visual supports may be helpful

Choking Phobias

- Fear and avoidance of swallowing foods, liquids, pills, or a combination of these in the absence of a true organic medical problem affecting swallowing and feeding (Burklow & Linscheid, 2004)

- May stem from a choking incident, a negative experience with distasteful food/medicine or even a sore throat

A Behavioral Intervention for Treating a Choking Phobia

- Participant
  - 4-year-old girl who developed a fear of choking after an acute choking episode
  - Refused almost all solids foods for 3 months prior to evaluation and was consuming primarily chocolate-flavored pediatric formula
- Intervention
  - Food selectivity intervention of single-bite taste sessions and probe meals
  - Occurred across two weeks at a pediatric feeding program

(Seiverling, et al. 2016)

Baseline

First several taste sessions…

First several taste sessions…

Probe Meal

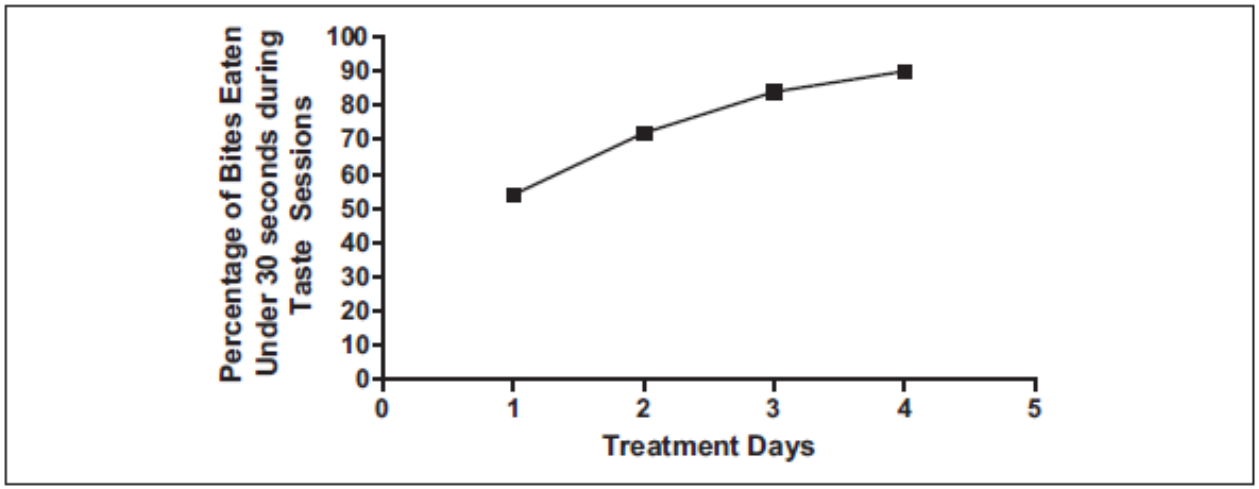


Figure 1. The percentage of bites eaten under 30 s during single-bite taste session across the first four treatment days.

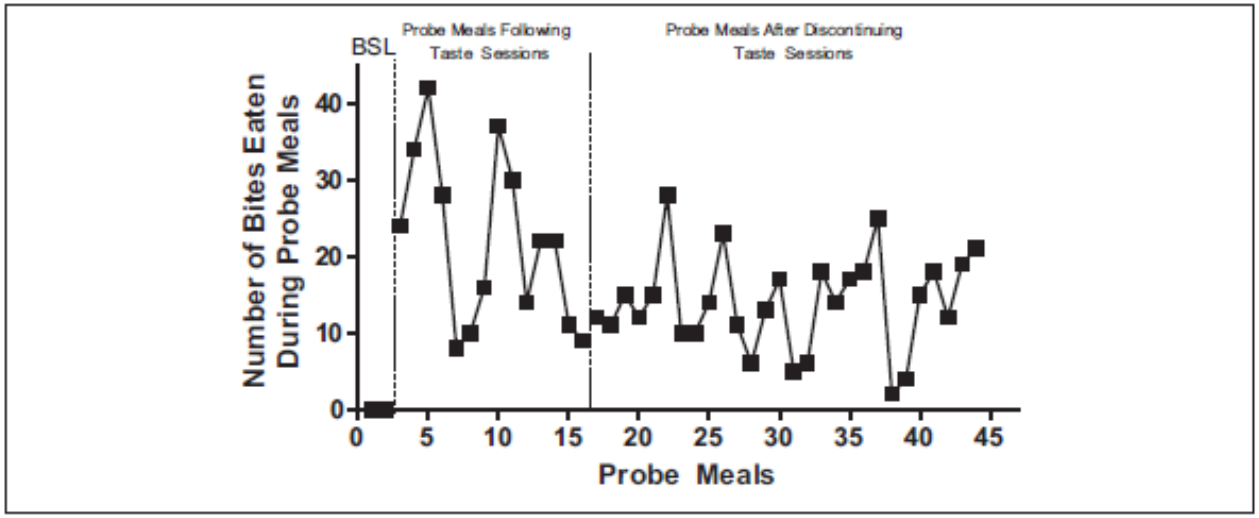


Figure 2. The number of bites eaten during 10-min probe meals across baseline and treatment.

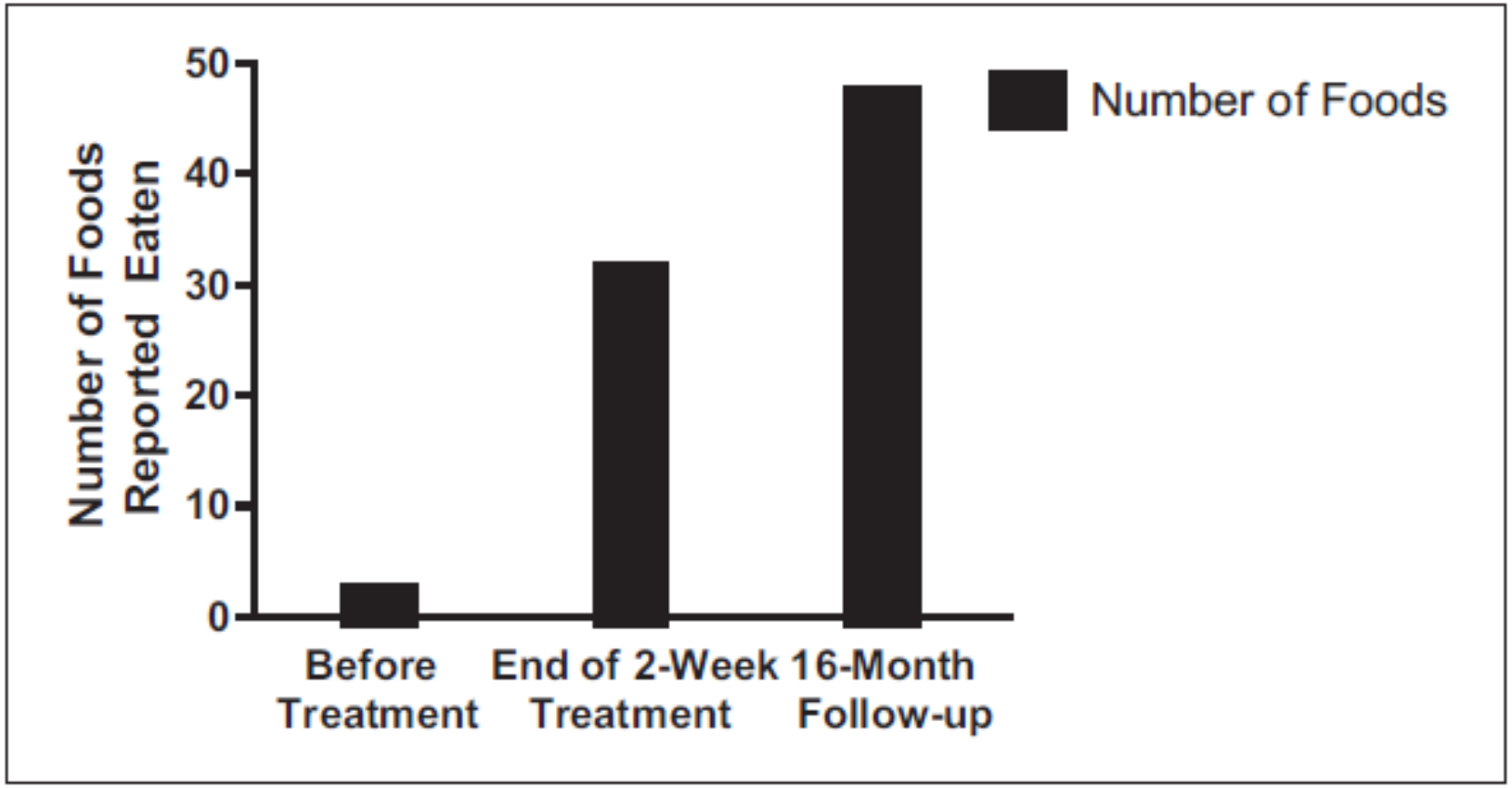


Figure 3. Number of foods reported eaten by the child before treatment, at the end of treatment, and at 16 months following treatment.

Training Caregivers to Implement Interventions

- Behavioral Skills Training (BST) with caregivers in the home (Seiverling et al., 2012)
- BST combined with General-Case Training (GCT; Alaimo et al., under review)

Caregiver Training Intervention

- Three mother-child dyads
  - All children had ASD diagnoses

- General Overview

  BSL, Training, Post-Training, & Follow-up Taste Sessions
  - BSL, Post-Training, & Follow-up Probe Meals
    - Ten taste sessions followed by a probe meal

Caregiver Training (Phase 1)

Taste Session Training

- Written instructions read out-loud
- Experimenter models **two** taste sessions with the child
- Parent rehearses **one** taste session with the child
- Feedback presented following rehearsal
- Continue sequence two times
  - 3 trial assessment without ongoing feedback
  - Training complete when parent performs with at least 90% of steps performed correctly during assessment

Caregiver Training (Phase 2)

Probe Meal Training

- Written instructions read out-loud
- Experimenter models **one** 3-min probe meal
- Parent rehearses **one** 3-min probe meal
- Feedback presented following rehearsal
  - Probe meal assessment

Results

Average Percentage of Correct Steps Performed Following Caregiver Training

TASTE SESSIONS

Tommy's Mom: 93%

Lance's Mom: 95%

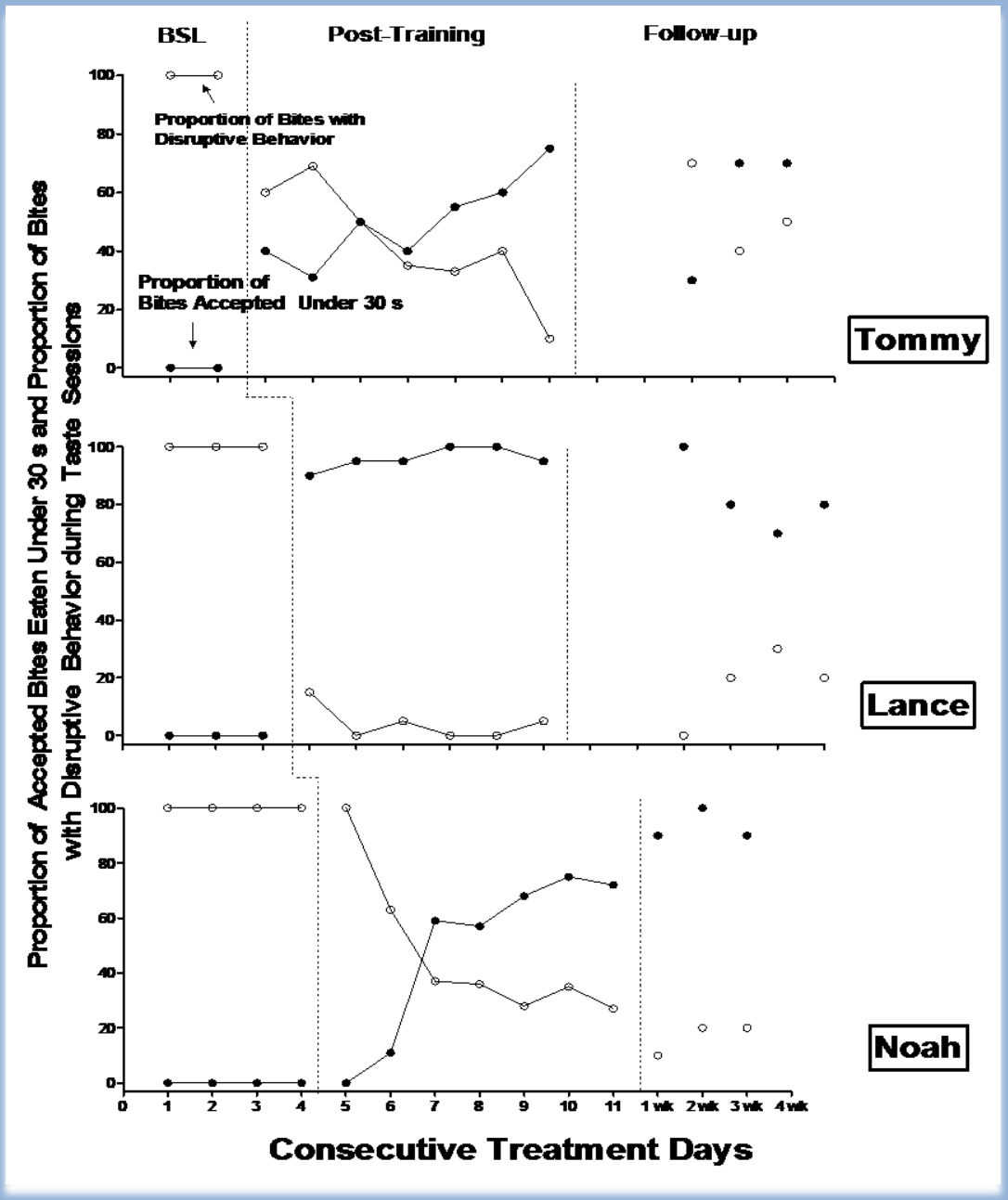
Noah's Mom: 99%

PROBE MEALS

Tommy's Mom: 92%

Lance's Mom: 91%

Noah's Mom: 96%


BSL
Post-Training
Follow-up
Proportion of Bites with Disruptive Behavior
Proportion of Bites Accepted Under 30 s
Tommy
Lance
Noah
Proportion of Accepted Bites Eaten Under 30 s and Proportion of Bites with Disruptive Behavior during Taste Sessions
Consecutive Treatment Days
0 1 2 3 4 5 6 7 8 9 10 11 1 wk 2 wk 3 wk 4 wk

Behavioral Skills Training combined with General-Case Training (GCT)

- General-case training involves training responses to the full range of discriminative stimuli to which responding should occur (Stokes & Baer, 1977)

- Combined BST and GCT has resulted in rapid acquisition and generalization of teaching skills when training staff and caregivers (Ward-Horner & Sturmey, 2008; Seiverling et al., 2010)

Why can GCT be helpful?

- If only using BST, you can't be sure the child will exhibit the range of responses caregivers may encounter during a meal

- What happens when the caregiver is alone implementing a meal with the child after you have conducted training?

GCT scripts

Table 1. Scripts that sample the variety of discriminative stimuli and responses that may be encountered during a treatment session.

S^D *for caregiver behavior*	*Caregiver behavior*	Scripts				
		A	B	C	D	E
1. Child accepts bite within 10 s of initial presentation	Provide behavior-specific verbal praise (e.g., "Good job taking your bite/drink!"	X	X	X		
2. Child expels the bite/drink.	Re-present bite/drink and instruct child to, "finish your bite/drink."		X			
3. Child does not accept bite within 10 s of initial presentation.	Prolonged Presentation; Repeat instruction "take your bite/drink" every 10-15 s until child accepts.				X	X
4. Child mouth cleans	Provide behavior-specific verbal praise and immediate access to reinforcers for 30 s	X	X		X	X
5. Child packs	Say, "finish your bite." Then, repeat mouth clean checks every 15-20 s until child swallows entire bolus			X		
6. Child gags	Ignore and do not provide direct attention to gag				X	
7. Child emits emesis	Wipe emesis with bib; do not talk for 10s after emesis; Then, re-present same bite/drink					X
8. Child engages in inappropriate behavior (e.g., blocking spoon, negative vocalization)	Ignore and do not provide direct attention to inappropriate behaviors and continue to provide instructions			X		X
9. Child attempts to get out of seat	Redirect child back to seat with physical guidance				X	

Caregiver training with BST and GCT

When to consider an intensive day treatment program…

- Does the child have complex medical needs?
- Is the child's feeding difficulties are affecting his or her health and/or development?

Thank you!

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stmary's
Healthcare System for Children
THE CINDY AND TOD JOHNSON
CENTER FOR PEDIATRIC FEEDING DISORDERS