



Assessment and Treatment of Feeding Disorders in Children

Cathleen C. Piazza, Ph.D.

University of Nebraska Medical Center's Munroe-Meyer Institute



UNMC Munroe-Meyer Institute



Feeding Behavior

No human activity has greater biological and social significance than feeding.



Pediatric Feeding Disorders

- ❑ Identified when a child fails to consume a sufficient variety or quantity of food to maintain nutritional status



Typical vs. Disordered Feeding

Typical

- ❑ Accepts breast or bottle
- ❑ Starts baby food around 4 to 6 months of age
- ❑ Transitions to mashed table foods by 12 months of age

Disordered

- ❑ Has difficulty breast or bottle feeding
- ❑ Consistently rejects baby food
- ❑ Has difficulty transitioning to mashed table foods



Typical vs. Disordered Feeding

Typical

- Picky eating emerges at 18 months of age
- Variety will reemerge with exposure
- Variety will be sufficient to provide adequate nutrition

Disordered

- Reaction to non-preferred food is excessive
- Inflexible food preferences may change, but variety remains restricted
- Variety does not provide adequate nutrition



Typical vs. Disordered Feeding

Typical

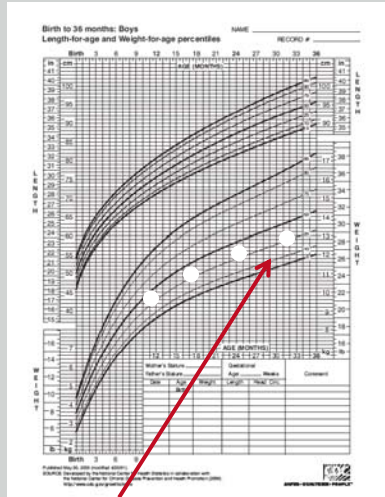
- Preferences are influenced by peers
- Eating persists in different environmental conditions
- Will eat non-preferred food when hungry

Disordered

- Insensitive to social cues around eating
- Eating is disrupted in different conditions
- Will not eat non-preferred food even when hungry

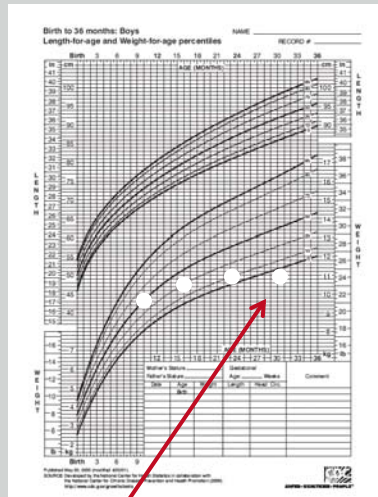


TPYICAL



Child should maintain growth along his or her own curve.

DISORDERED



Growth should not decelerate.

GROWTH



Pediatric Feeding Disorders

- Child evidences any one of the following characteristics:
 - Child experiences three consecutive months of weight loss
 - Child is diagnosed with dehydration or malnutrition, which results in emergency treatment
 - Child has NG-tube with no increase in the percentage of calories obtained via oral feeding for 3 consecutive months



Pediatric Feeding Disorders

- Symptoms of dehydration:**
 - Low or no urine output
 - Urine appears dark yellow and/or is strong smelling
 - Dry mucous membranes
 - Sunken eyes
 - Markedly sunken fontanelle
 - Lethary
 - Vomiting and/or diarrhea



Pediatric Feeding Disorders

- Parent reports any one of the following:**
 - Chronic lengthy meals
 - Unusual or inappropriate mealtime conditions
 - Failure to advance texture
 - Over-dependence on a single source of nutrition
 - High levels of inappropriate mealtime behavior
 - High levels of caregiver stress during meals



Pediatric Feeding Disorders

- ❑ **Meal lengths over 30 min are the best predictor of a feeding disorder relative to any other target behavior.**



Interdisciplinary Approach

- ❑ **Consider a comprehensive, interdisciplinary evaluation prior to initiation of treatment**



Interdisciplinary Approach

Interdisciplinary team evaluation:

- Medicine:** Rule out physical causes of feeding problem
- Nutrition:** Evaluate adequacy of current intake
- Social Work:** Evaluate family stressors
- Speech/Occupational Therapy:** Evaluate oral motor status and safety
- Psychology:** Assess contribution of environmental factors



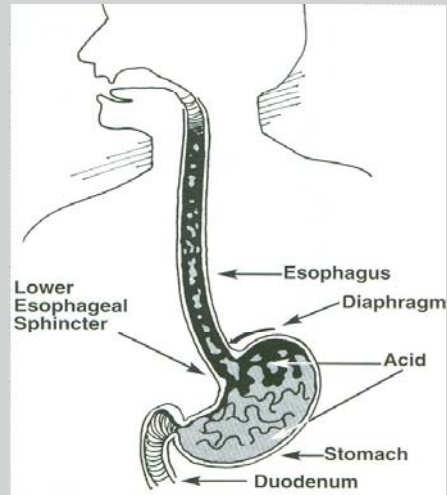
Pediatric Feeding Disorders

Medical:

- Does the child have a history of a medical problem that may have caused eating to be painful or unpleasant?
- Medical problems sometimes are “masked” as a result of the child’s refusal or low oral intake



Medical Conditions



Gastroesophageal reflux disease is one of the most common medical problems of children with feeding disorders.



Pediatric Feeding Disorders

Oral motor:

- Weak suck
- Choking or gagging during meals
- Tongue thrusting or inability to lateralize the tongue
- Wet vocal sounds during or after meals
- Preferences for smooth or creamy textures



Pediatric Feeding Disorders

Behavioral:

- Does the meal end or does the child receive attention (e.g., coaxing, reprimands) or preferred food or toys following inappropriate mealtime behavior?



Pediatric Feeding Disorders

Physiological:

- Does the parent report that the child will go for long periods of time without eating or drinking?



Setting Goals for Treatment

❑ Goals should be:

- ❑ Individualized
- ❑ Observable
- ❑ Measurable

❑ Sample goals:

- ❑ Increase total oral intake to 50% of needs
- ❑ Increase variety by 8 new foods
- ❑ Increase acceptance of solids to 80%
- ❑ Decrease inappropriate mealtime behavior to 1 per minute or less



FEEDING GOALS: Jenny Smith

Date: 4-26-07

Increase Total Intake by Mouth

Admission: 0%

Current: 25%

Discharge: 100%

Increase Acceptance of 8 novel foods

Admission: 0%

Current: 50%

Discharge: 80%-100%

Decrease Inappropriate Mealtime Behavior

Admission: 15.6 per minute

Current: 5.2 per minute

Discharge: at or below 1 per minute

Decrease Tube Feeding

Admission: 100%

Current: 50%

Discharge: 0%

Measurable goals are set for each patient



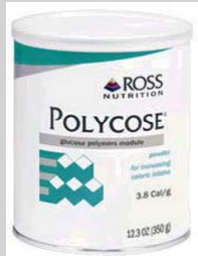
Assessment

- Why is it important to structure meals?**
 - Creates a predictable environment for the child
 - Ensures the expectations of the meal are clear to the child
 - Allows for systematic changes when implementing treatment components



How do we structure the meal?

- Identify foods that will be presented**
 - Identify food type
 - Specify foods by name, food group, brand, recipe
 - Identify food texture
 - Precisely describe how texture is achieved



<http://abbottnutrition.com/Products/polycose>



http://www.axcan.com/canada_scandi_info.php?lang=1



<http://www.thickitretail.com/>



www.NestleNutritionStore.com



Eating and Drinking Utensils

Plastic Coated Baby Spoons



Maroon Spoons



Nuk Brush



Cut-out (nosey) cups





How do we structure the meal?

Liquids

AGE	UTENSIL TYPE	BOLUS
Birth to 8 months	Bottle	59 cc
8 months to 4 years	Pink cut-out cup	2 cc
4 to 8 years	Blue cut-out cup	4 cc
8 to 12 years	Regular cup	6-8 cc



How do we structure the meal?

Solids

AGE	UTENSIL TYPE	BOLUS
4 to 8 months	Coated baby spoon	¼ level spoon
9 to 12 months	Coated baby spoon	½ level spoon
13 to 18 months	Coated baby spoon	Level spoon
19 months to 6 years	Small maroon spoon	Level spoon
7 years+	Large maroon spoon	Level spoon



Feeding behavior is quantified and measured precisely



Operationally Defining Behavior

- Concise, detailed definition of behavior
- Used to remove ambiguity and ensure all data collectors are measuring same behavior



Operationally Defining Behavior

Frequency

- Bite Presented
- 5-s Acceptance
- Bite Taken After 5 s
- Expel
- Mouth Clean
- Pack
- Gag
- Cough
- Vomit
- Inappropriate Behavior

Duration

- Negative Vocalizations

Feeder Integrity

- Incorrect Escape
- Spoon at lips
- Incorrect Positive Reinforcement
- Incorrect Praise



Functional Analysis of Pediatric Feeding Disorders

- We evaluate factors that may contribute to the maintenance of inappropriate feeding behavior
 - Functional analysis



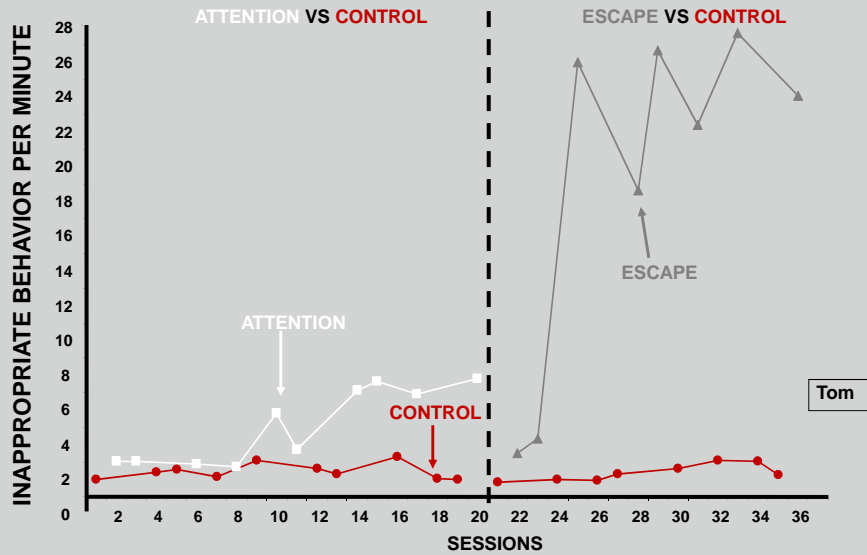
Functional Analysis of Pediatric Feeding Disorders

- ❑ **Identification of the sources of reinforcement for food refusal behavior**
 - ❑ Caregivers may provide a break from eating and other consequences (e.g., attention, preferred food or toys) following inappropriate mealtime behavior

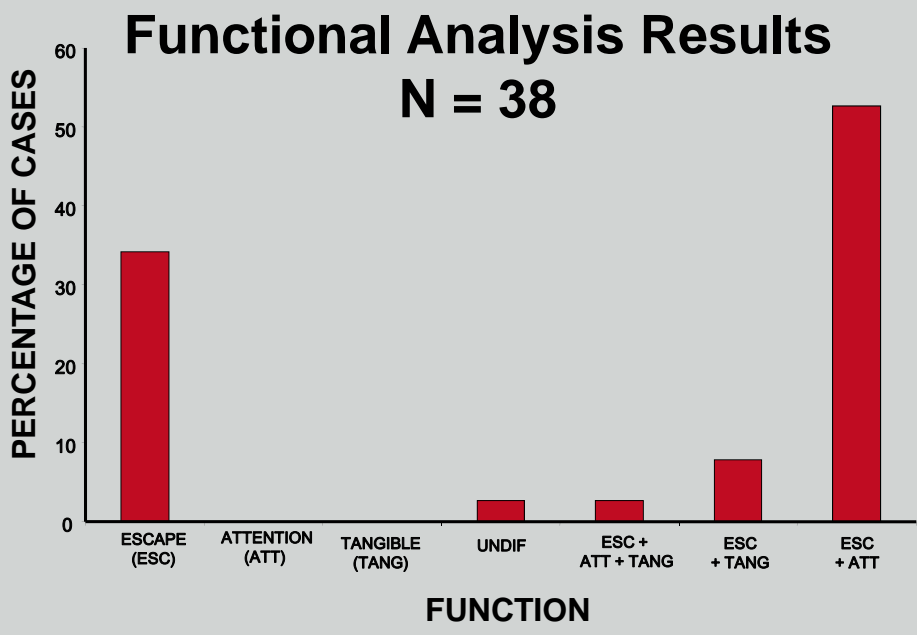


Functional Analysis

Condition	Consequence for Inappropriate Behavior	Bite Presentation
ESCAPE	20 s to 30 s of escape	removed for 20 s
ATTENTION	20 s to 30 s of attention	remained at midline
TANGIBLE	20 s to 30 s of access tangible	remained at midline
CONTROL	no differential consequence	remained at midline



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Functional Analysis of Pediatric Feeding Disorders

The findings suggest that:

- Negative reinforcement appears to play a primary role in the maintenance of feeding problems
- Additional operant variables may develop for children with feeding problems



Functional Analysis of Pediatric Feeding Disorders

General Procedures

- Feeder presents 5 bites or drinks in each session
- Feeder presents bites every 30 s



Escape Condition

Feeder delivers 30 s of **escape** following inappropriate behavior.



Attention Condition

Feeder delivers 30 s of **attention** following inappropriate behavior.





Control Condition

Feeder provides continuous access to toys and attention. No differential consequence following inappropriate behavior.



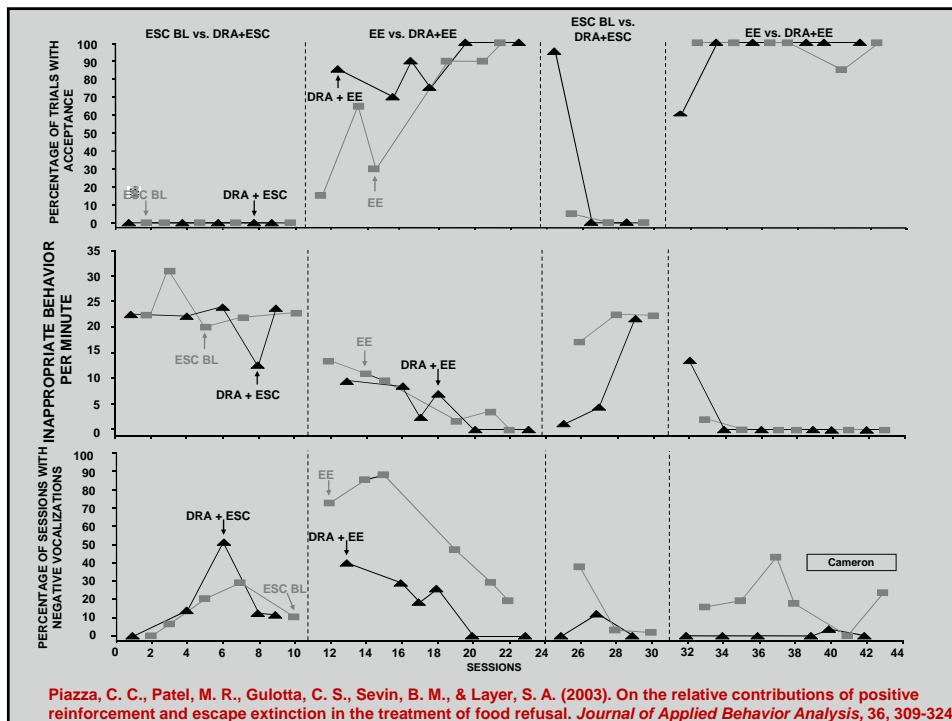
Treatment of Feeding Disorders

Date	Meal (B, L, D)	Emesis (oz)	Foods
1/17/05	B	4	waffle, bacon
1/17/05	L	0	½ tuna sandwich, chips, apple
1/17/05	D	.5	chicken breast, peas, rice
1/18/05	B	3.5	cereal, applesauce
1/18/05	L	0	4 chicken nuggets, pear, french fries
1/18/05	D	0	roast, potatoes, green beans



Treatment of Feeding Disorders

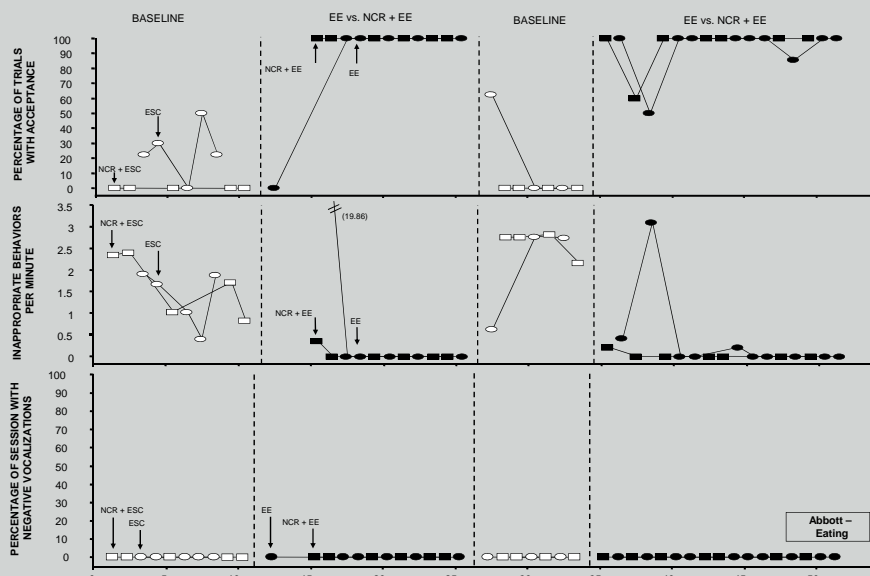
Date	Meal (B, L, D)	Start time	End time	Foods
1/17/05	B	7:30	7:55	yogurt, applesauce
1/17/05	L	12:15	1:30	½ tuna sandwich, chips, apple
1/17/05	D	6:30	8:00	chicken breast, peas, rice
1/18/05	B	7:25	7:45	yogurt, applesauce
1/18/05	L	12:20	1:25	4 chicken nuggets, pear, french fries
1/18/05	D	6:00	7:15	roast, potatoes, green beans



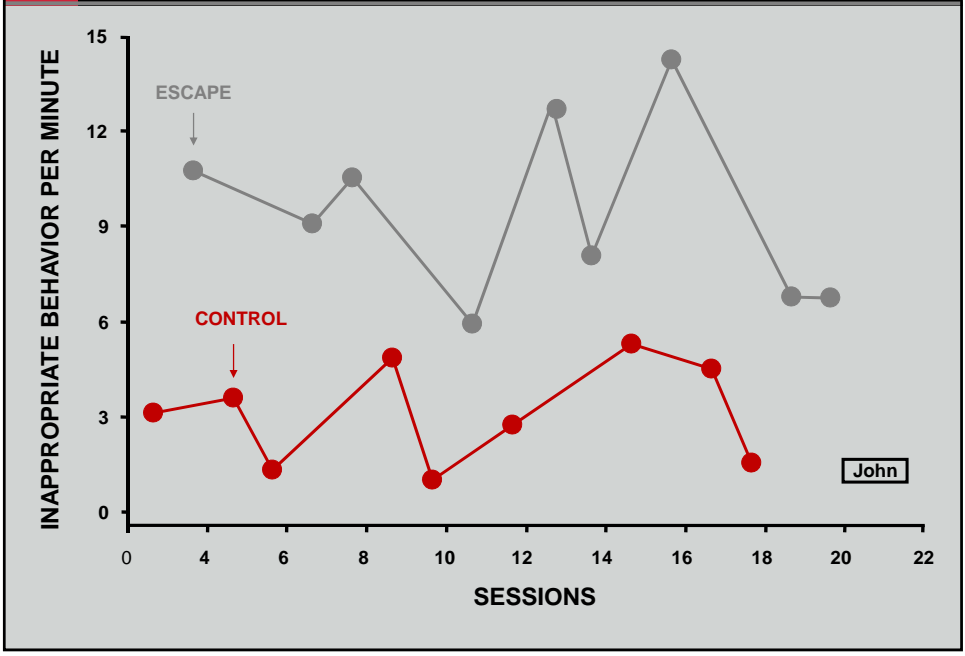
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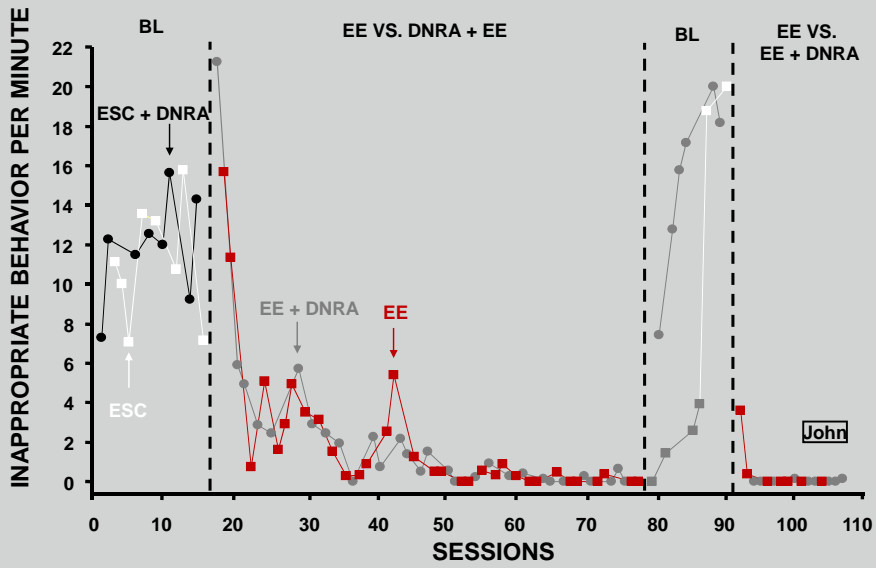
Condition	Consequence for Inappropriate Behavior	Bite Presentation	Reinforcement
ESC	20 s of escape	removed for 20 s	brief praise
NCR + ESC	20 s of escape	removed for 20 s	access to Sr+ throughout
EE	no differential consequence	remained at child's lips	brief praise
NCR + EE	no differential consequence	remained at child's lips	access to Sr+ throughout



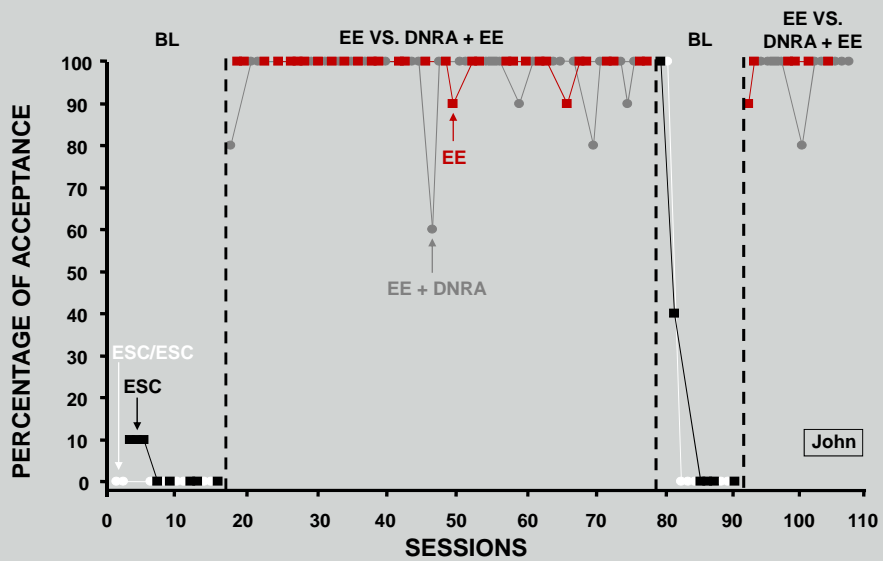
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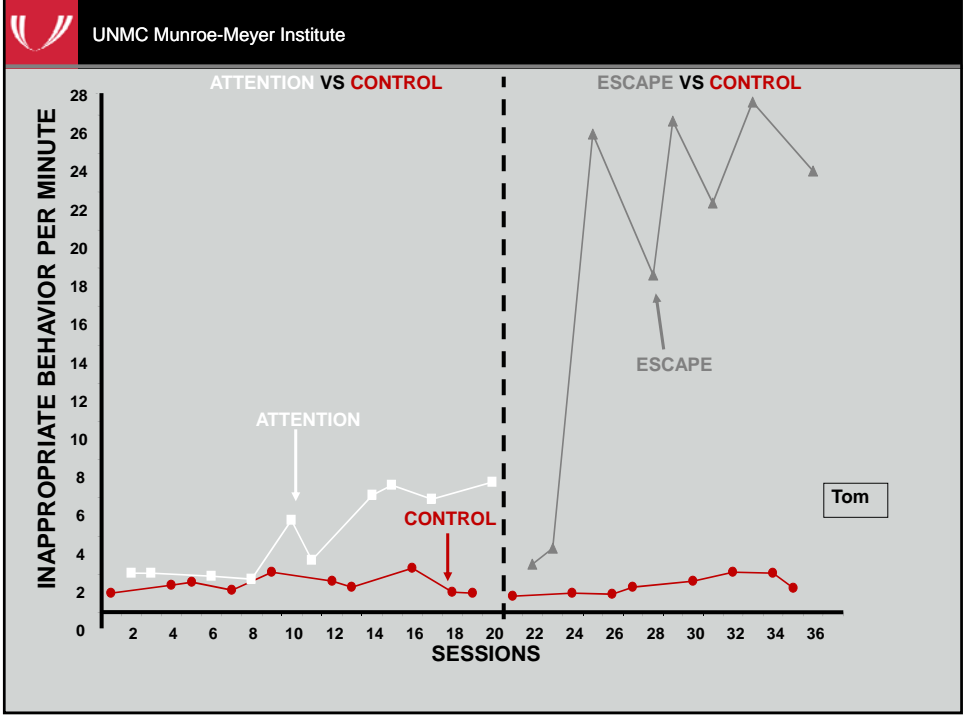
Condition	Consequence for Inappropriate Behavior	Bite Presentation	Consequence for Mouth Clean
ESC	20 s of escape	removed for 20 s	brief praise
DNRA + ESC	20 s of escape	removed for 20 s	20-s break/brief praise
EE	no differential consequence	remained at child's lips	brief praise
DNRA + EE	no differential consequence	remained at child's lips	20-s break/brief praise



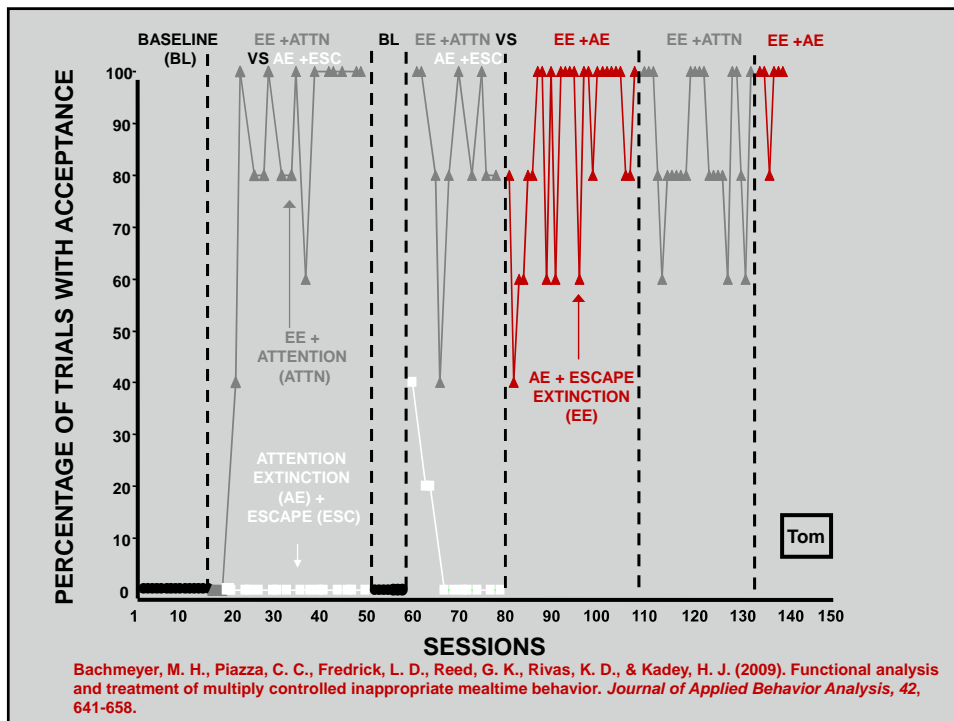
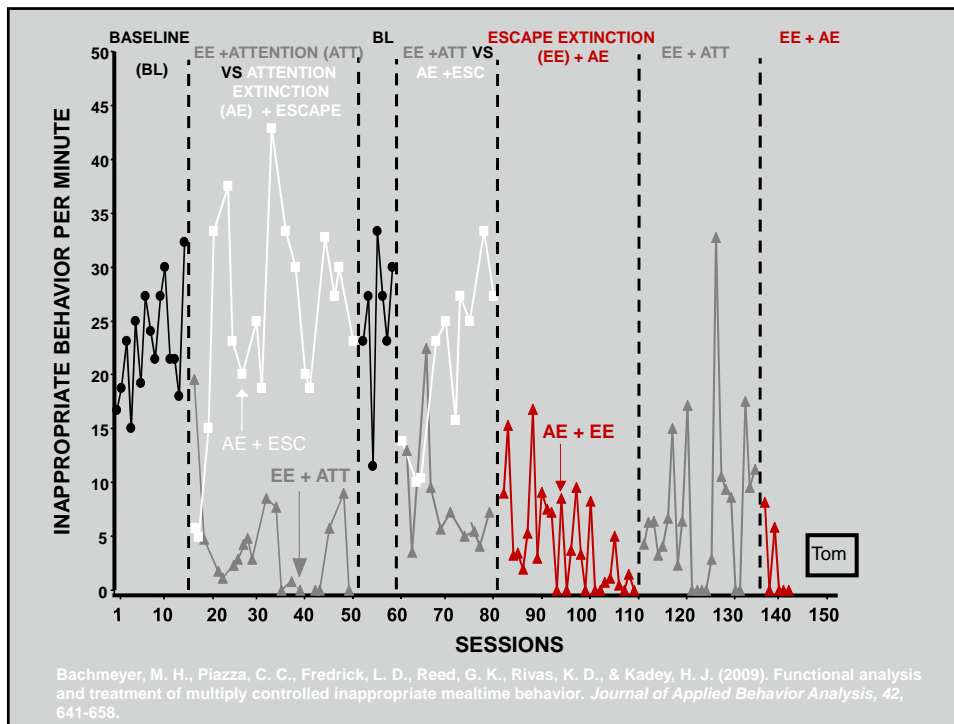
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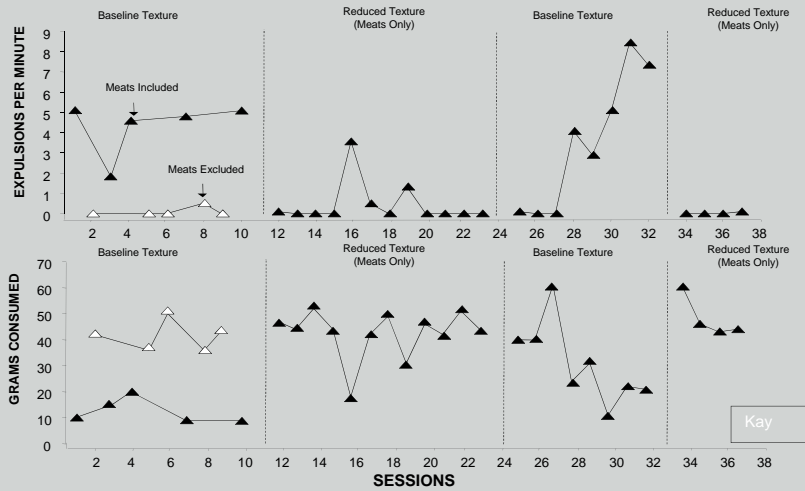


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CONDITION	CONSEQUENCE FOR INAPPROPRIATE BEHAVIOR	BITE PRESENTATION
ESC/ATT	20 s of escape plus attention	removed for 20 s
ESC EXT/ATTN	20 s of attention	remained at child's lips
ESC/ATTN EXT	20 s of escape	removed for 20 s
ESC EXT/ATTN EXT	no differential consequence	remained at child's lips





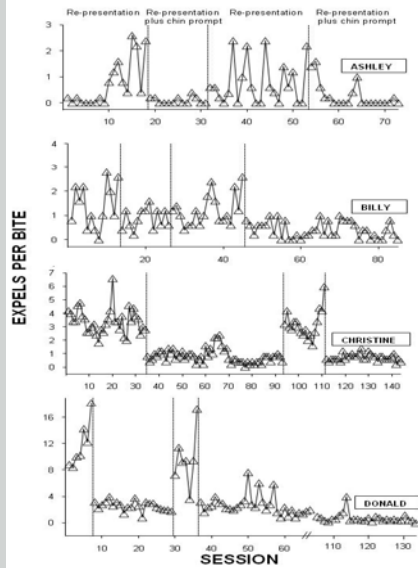
Bottle Feeding



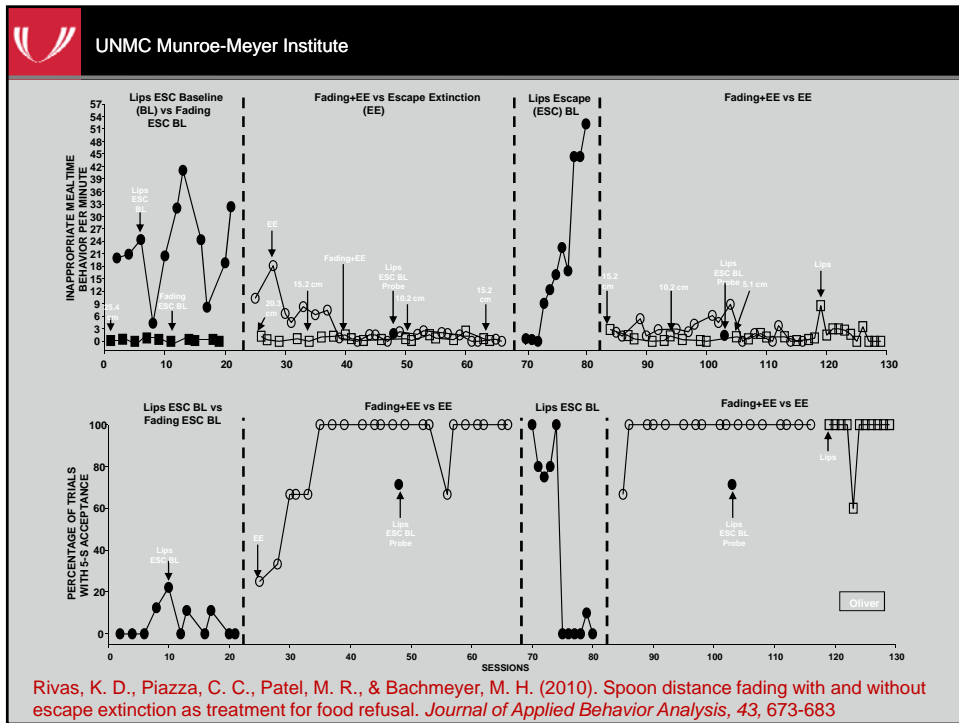
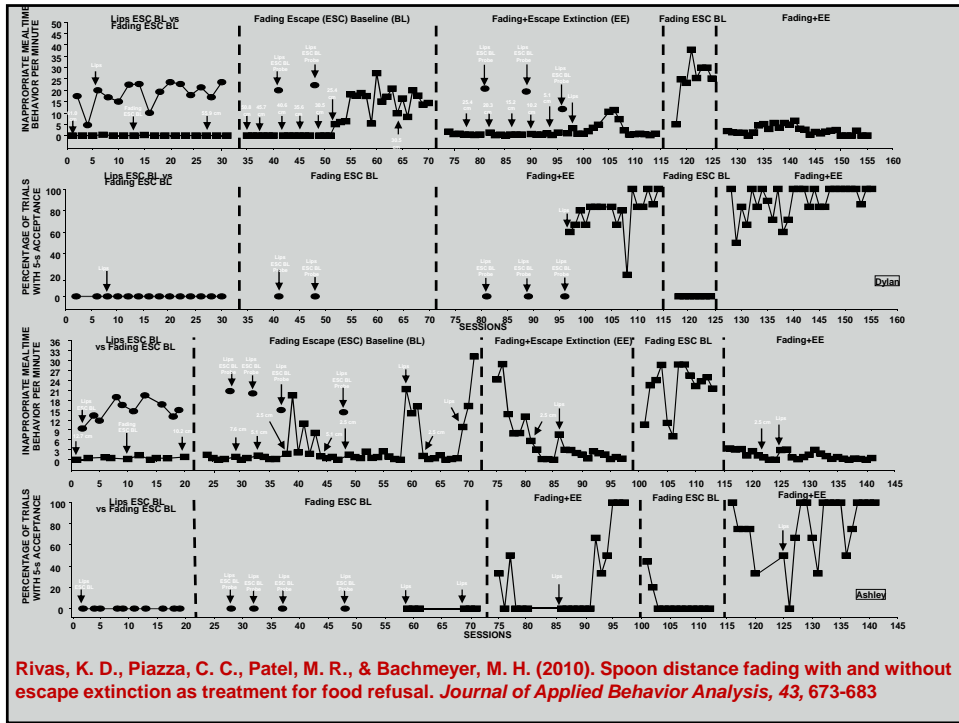
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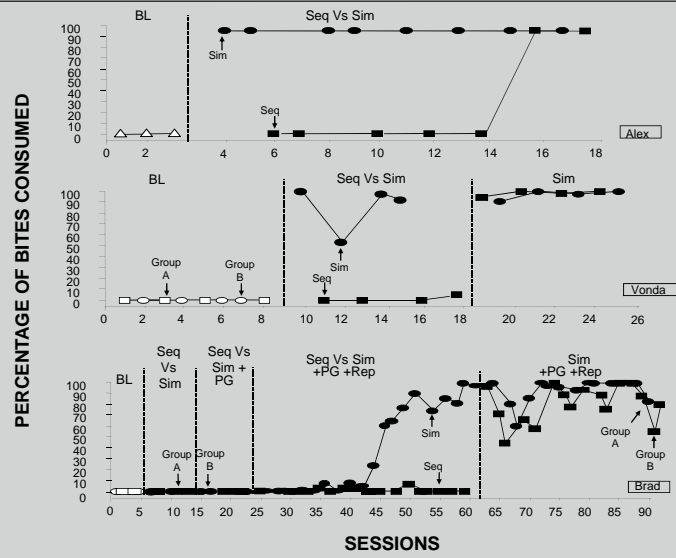


Chin Prompt

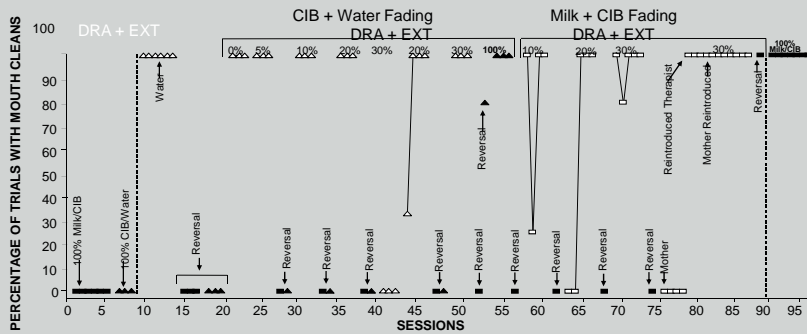


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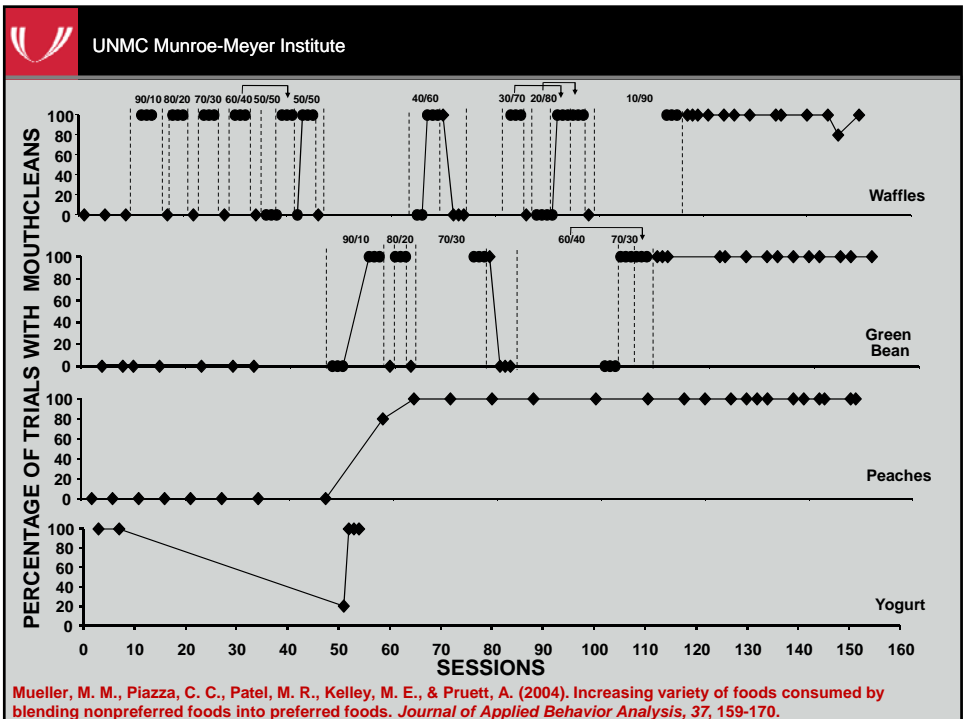
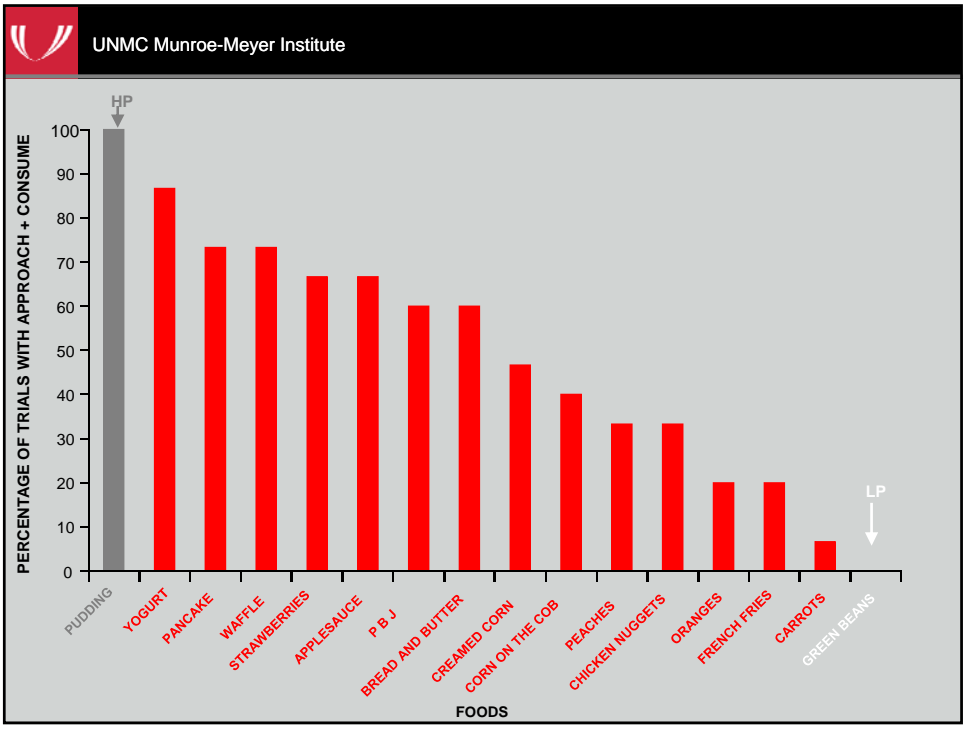




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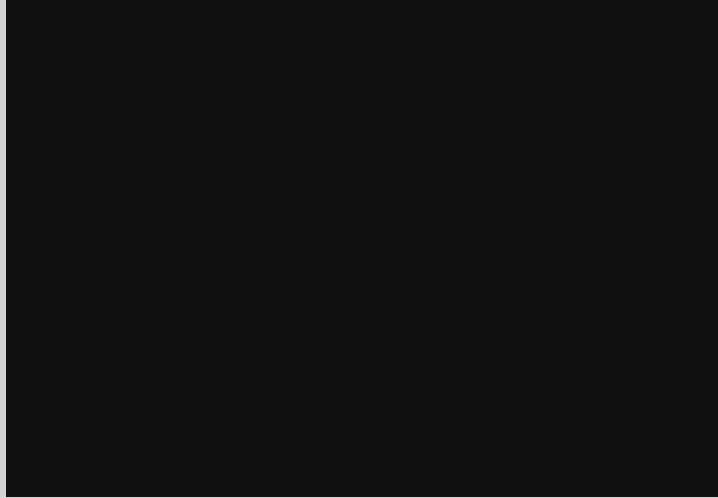
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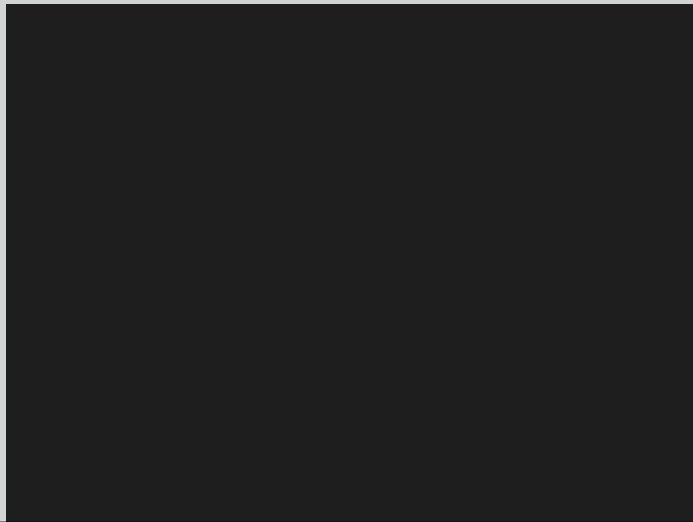
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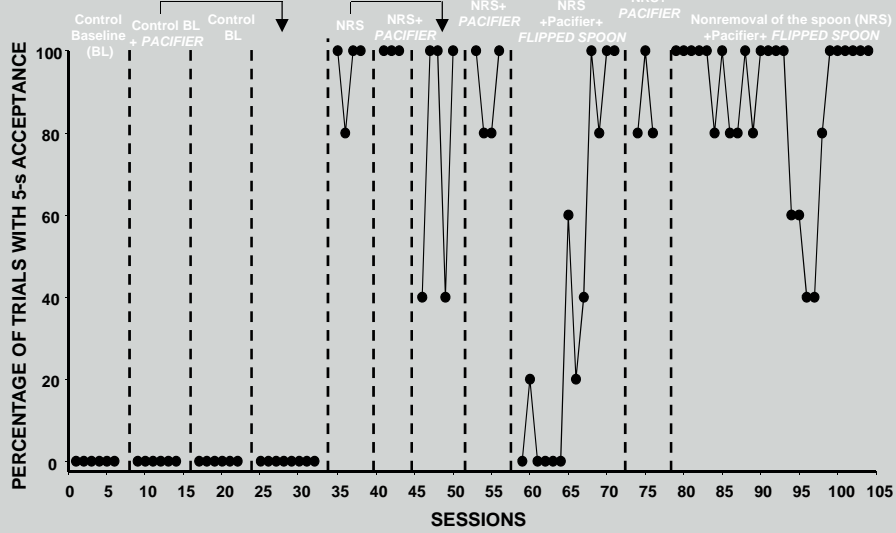


Using a Pacifier to Facilitate Swallowing

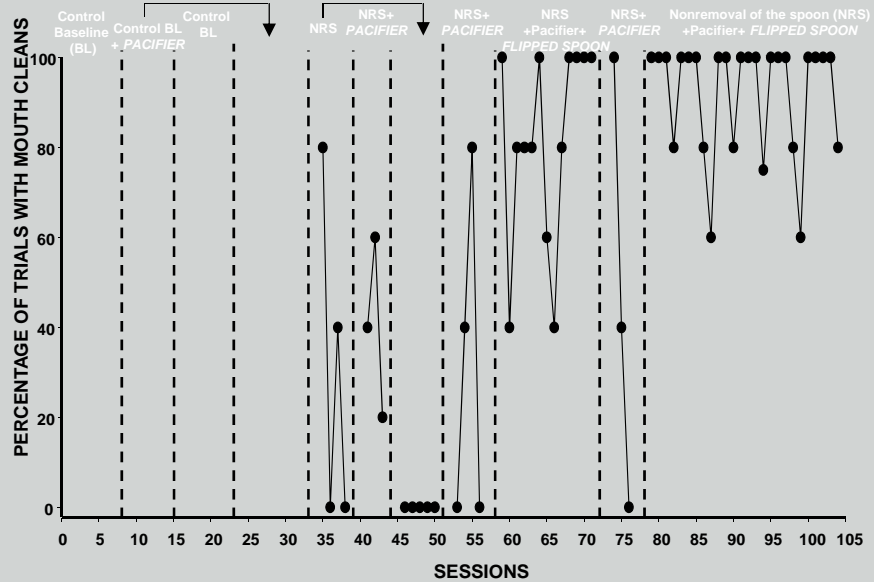


Flipped Spoon

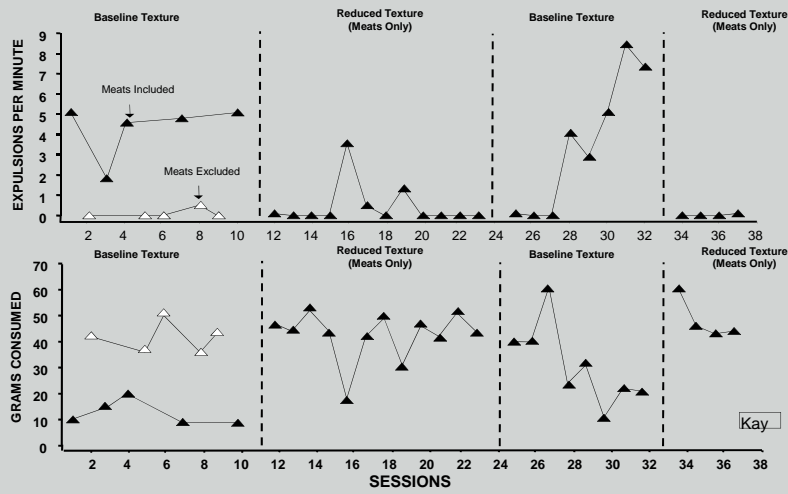




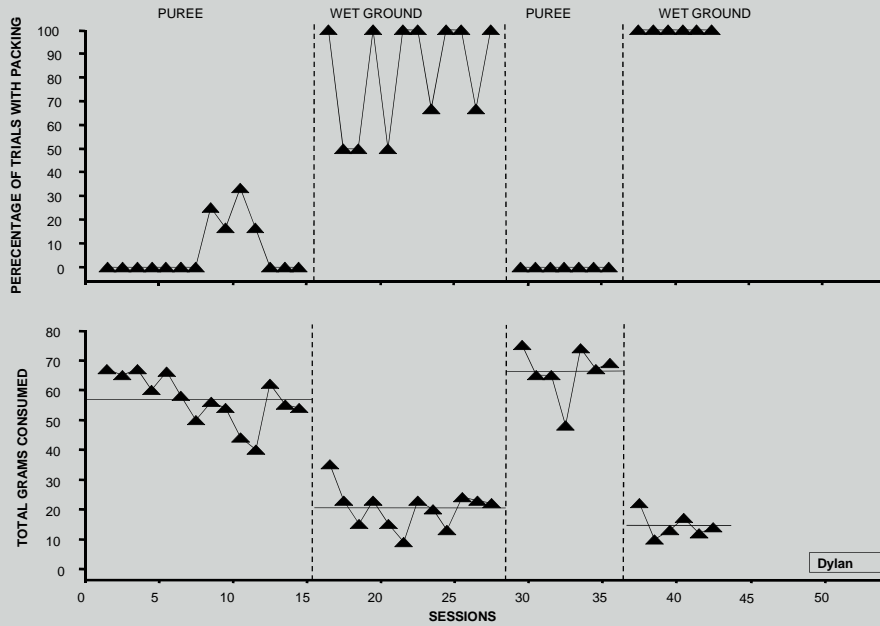
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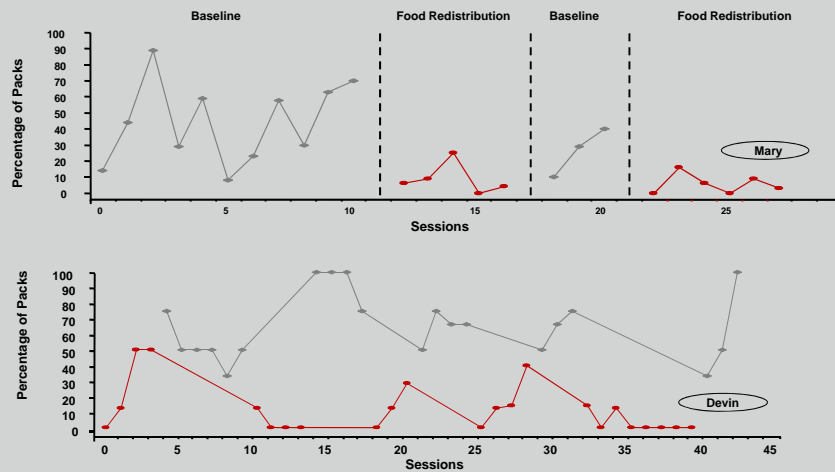
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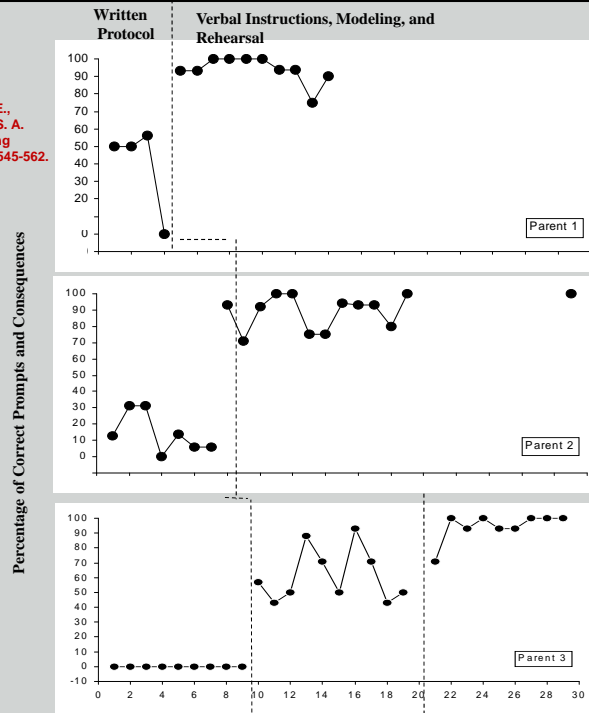


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Teaching Self-Feeding



Teaching Chewing





Self-Feeding and Chewing



Age Appropriate Portion





Age Appropriate Portion



I'm Done!





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