

**Decreasing the Aversive Properties of Eating:  
An Examination of Stimulus Fading  
and Escape Extinction  
in the Treatment of Food Refusal**



**Meeta R. Patel  
Jennifer L. King  
Angela E. Pruett  
Clinic 4 Kidz**

***Introduction***

- Children with pediatric feeding disorders may engage in a variety of inappropriate behaviors to avoid eating.
- Numerous studies have evaluated the effectiveness of escape extinction (EE) to treat food refusal (e.g., Ahearn et al., 1996; Hoch et al., 1994; Patel et al., 2002; Piazza et al., in press).

***Introduction***

- Although EE has been an effective intervention, there also are many side effects.
  - extinction bursts
  - emotional responding
- Piazza et al. (2003) found that EE alone resulted in more emotional responding and extinction bursts when compared to differential reinforcement (DRA) + EE.

***Introduction***

- More research evaluating alternative procedures to treat food refusal is warranted
  - in some cases EE may not be effective
- Patel et al. (2001) treated liquid refusal using a stimulus fading procedure
  - DRA + EE was not effective
  - consumption increased when DRA + EE was combined with stimulus fading

***Introduction***

- Johnson and Babbitt used a stimulus fading procedure to increase acceptance of solid foods from a spoon.
  - solid foods were initially presented in a bottle and the feeding apparatus were altered systematically

***Introduction***

- The purpose of this study was to evaluate
  - an assessment procedure that may aid in a successful fading treatment
  - an alternative treatment to EE alone so that emotional responding may be reduced

### **Method**

- **Participants:** 2 children with a pediatric feeding disorders admitted to an intensive home-based feeding program
  - **Mix:** typically developing 2-year-old male
    - prematurity, tube dependent, gastroesophageal reflux (GER), failure to thrive (FTT)
  - **Ash:** 4-year-old male with mild delays
    - tube dependent, GER, FTT

### **Method**

- **Setting**
  - Home
- **Dependent Variables**
  - Acceptance (i.e., entire bite entering the mouth within 5 s of the presentation)
  - Combined inappropriate behaviors (CI's) [i.e, head turning, batting, & blocking]

### **Method**

- **Experimental Designs**
  - Antecedent Assessment
    - multielement design
  - Treatment Evaluation
    - multiple probe design
      - baseline probes were conducted after stability was obtained in each step
    - multiple baseline across participants design

### **Method**

- **Procedures-Antecedent Assessment**
  - 3 conditions were determined to be evaluated depending on parental input
  - Sessions were 10 bites
  - Bites were presented every 5 seconds
  - The bite remained stationary until the child took the bite or the 5 seconds elapsed
  - All CI's were ignored

### **Method**

- **Procedures- Treatment Evaluation**
  - Baseline
    - All sessions were 8 bites
    - 4 foods were presented (one from each food group)
    - 2 bites of each food were presented during each session
    - All foods were presented at a puree texture based on the skill level of both participants

### **Method**

- **Procedures- Treatment Evaluation**
  - Baseline
    - Sessions were identical to the antecedent assessment
    - If the child did not take the bite within 5 seconds a new food was presented
    - Food were presented in random order each session

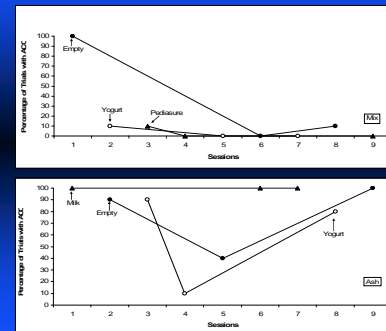
## Method

### Procedures- Treatment Evaluation

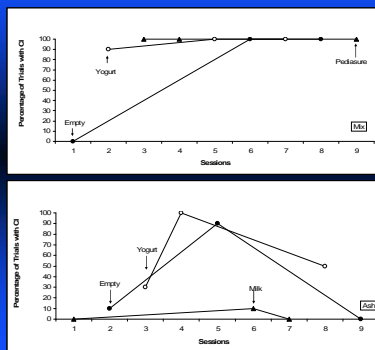
#### Fading + EE

- The starting point for treatment was based on the results on the Antecedent Assessment
- Bolus fading was used with the same variety of foods used in baseline
- If the child did not accept the bite within 5 seconds then a physical guidance procedure was implemented after 5 seconds (i.e., gentle pressure on the mandibular joint to facilitate opening)
- All CI's were blocked or ignored until the bite was placed in the mouth

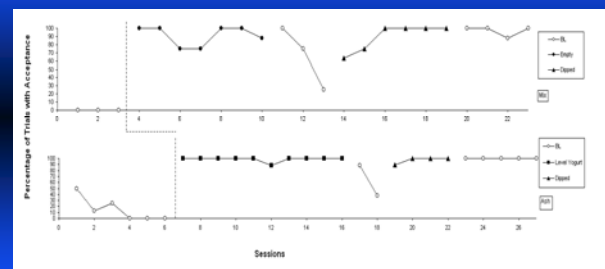
## Antecedent Assessment – Acceptance



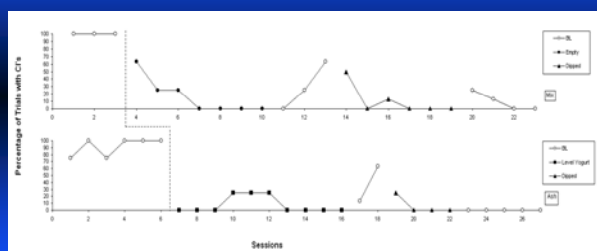
## Antecedent Assessment – CI's



## Treatment Evaluation - Acceptance



## Treatment Evaluation – CI's



## Discussion

- During the antecedent assessment acceptance was higher for Mix during the empty spoon condition therefore indicating this as a starting point for fading for this participant.
- However, for Ash his acceptance was variable in all condition but since he showed some acceptance with the yogurt (highest level) that seemed to be the best starting point for his fading treatment.

### *Discussion*

- During the treatment evaluation both participants showed low levels of acceptance in baseline but acceptance increased and CI's decreased with the fading + EE treatment.
- Eventually both participants began accepting during baseline conditions.

### *Discussion*

- It is unclear whether fading alone would have produced the same results; however it is likely that the fading component reduced the aversive properties of EE.
- It is also unclear whether acceptance increased during subsequent baseline sessions as a function of carry over or whether eating was no longer aversive for the children.

### *Discussion*

- These data show the importance of conducting assessments prior to treatment implementation for children with feeding problems.
- In addition, these data are promising in that they show positive clinical outcomes as well as verify the utility of fading + EE as a viable treatment option.

### *Discussion*

- Both participants are currently eating 100% of their needs by mouth and are no longer receiving any nutrition via tube feedings and are eating a variety of different foods (at least 16 different foods).
  - The same fading + EE protocol was used to increase variety
- Although these results are clinically significant, it is unclear what mechanism was responsible for behavior change and whether more emotional responding would have occurred with EE alone.

### *Discussion*

- Future studies should evaluate
  - emotional responding by comparing EE alone to fading + EE to determine if fading enhances the effectiveness of EE
  - whether the same results would be possible with fading alone
  - parental satisfaction of different treatment approaches
    - parents may prefer a less aversive treatment package; therefore being able to implement it in the absence of a clinician

### *Conclusions*

- Thank you for attending our symposium.
- Sorry I could not attend Cal-aba to give this presentation but I came down with pneumonia.
- If you have any questions about our data please feel free to contact me.
  - Meeta R. Patel, Ph.D., BCBA  
[clinic4kidz@msn.com](mailto:clinic4kidz@msn.com)
- Thank you and hope to see you all next year.