

*PARENTAL ASSESSMENT AND TREATMENT OF
FOOD SELECTIVITY IN NATURAL SETTINGS*

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This study evaluated the effects of a parent-conducted functional analysis and treatment consisting of differential reinforcement of an alternative behavior, escape extinction, and demand fading on food selectivity in a young child with autism. Increases in food acceptance at home and in a restaurant were obtained.

DESCRIPTORS: autism, demand fading, differential reinforcement, escape extinction, food selectivity, functional analysis

Most behavioral assessments of and interventions for food selectivity are conducted by clinicians (e.g., Piazza et al., 2002). Although previous research has demonstrated effective results with parents acting as primary change agents throughout intervention (e.g., Anderson & McMillan, 2001), few studies have included data collection and implementation of treatments by parents in multiple settings. The current study included parents as therapists during a functional analysis and as primary data collectors during intervention. Parents implemented the treatment for food selectivity in their home and in a restaurant setting.

METHOD

Participant, Settings, Data Collection, and Interobserver Agreement

Jack was a 5-year-old boy who had been diagnosed with autism spectrum disorder. Prior to treatment, his diet consisted mainly of candy, chips, and McDonald's chicken nuggets and french fries. Jack's parents conducted daily sessions during dinner (either in their home or in a restaurant). Growth was within normal limits.

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During the functional analysis, number of food refusals (protesting, whining, or crying; pushing or throwing utensils or food; turning head by 45° or more away from the food) were recorded. During intervention, the number of bites accepted (food passing the plane of the lips) and swallowed (food accepted without expulsion per mouth inspection) were recorded.

An independent observer recorded data with Jack's mother during 33% of sessions. Interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Agreement averaged 99.8% across all measures (range, 85% to 100%).

Functional Analysis

Jack's mother delivered antecedents and consequences as instructed by the primary investigator (during meals) modified from the procedures presented by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994). During the no-interaction condition, a plate consisting of one bite each of five non-preferred foods (NPFs; chosen on 0% of opportunities during a paired-choice preference assessment; these included broccoli, grapes, cheese, chicken, and hot dogs) was placed in front of Jack while he was left alone at the table. No demands to take a bite or conse-

quences for food refusal were delivered. During the attention condition, a plate consisting of one bite of each NPF was placed in front of Jack, but no demands were given. Contingent upon food refusal, Jack's mother delivered attention (e.g., "I know the food is so gross."). During the play condition, a plate consisting of one bite of each NPF as well as a plate of high-preference foods (HPFs; chosen on 82% to 91% of opportunities during the preference assessment; these included six chicken nuggets, small order of french fries, five Cheetos®, and three Gummy Bears®) was placed in front of Jack (no demands were given). Noncontingent positive attention was provided every 30 s, and no consequences were provided for food refusal. During the escape condition, a plate of NPF was placed in front of Jack while demands to take a bite of food were delivered continuously. Demands were presented using a three-step prompting procedure involving an initial instruction to self-feed, a model demonstrating how to take a bite, and a physical prompt (Jack's mother put the bite into Jack's mouth). Praise was provided contingent on all bites of food accepted; the plate of NPF was removed for 30 s contingent on food refusal. Sessions lasted 5 min and were conducted in a mutlielement design.

Treatment Evaluation

A multiple baseline across settings with demand fading was utilized to evaluate the effects of differential reinforcement of alternative behaviors (DRA) and DRA plus escape extinction plus demand fading.

Baseline. In baseline, each of the five NPFs (e.g., broccoli, grapes, cheese, chicken, and hot dogs) were presented one at a time on a trial-by-trial basis to Jack by his mother, who instructed him to take a bite using the three-step prompting procedure. Each food was presented only once. Praise was provided for food acceptance, and foods were re-

moved for 30 s contingent on food refusal. The meal was terminated when Jack either accepted one bite of any of the NPFs or escaped all five trials.

DRA. Procedures were identical to baseline, except that (a) sessions were terminated when either Jack accepted one bite of food or 30 min had elapsed (whichever occurred first), and (b) Jack was told if he ate one bite of food, then he could have a plate full of four HPFs (e.g., chicken nuggets, french fries, Cheetos®, and Gummy Bears®). An entire plate of HPF was delivered to keep Jack from losing weight during the initial phases of treatment.

DRA plus escape extinction plus demand fading. Session termination was identical to the DRA condition. Because it was inevitable that the session would terminate after the first bite presentation with escape extinction, Jack's mother semirandomly selected one NPF item to present each night such that no NPF was presented two nights in a row. Jack's mother instructed Jack to take one bite while she held the bite within 1 in. of his mouth until either he opened his mouth (upon which she inserted the bite) or 30 min had elapsed. During the first four dinners of this phase, if a bite was initially accepted but then expelled or vomited, Jack was still provided access to the HPF. However, beginning with the fifth dinner and thereafter, bites expelled or vomited resulted in a new bite of the same NPF being presented until Jack swallowed it.

When Jack swallowed the required number of bites for three consecutive dinners, the number of swallows required to obtain reinforcement was proportionally increased by 50% (fractions were rounded up to the next whole bite). To make the meals similar to a dinner composed of a variety of foods, multiple NPFs were systematically introduced into the meal beginning at Session 55 (18 bites composed of two NPFs, 27 bites composed of four NPFs, 41 bites composed of

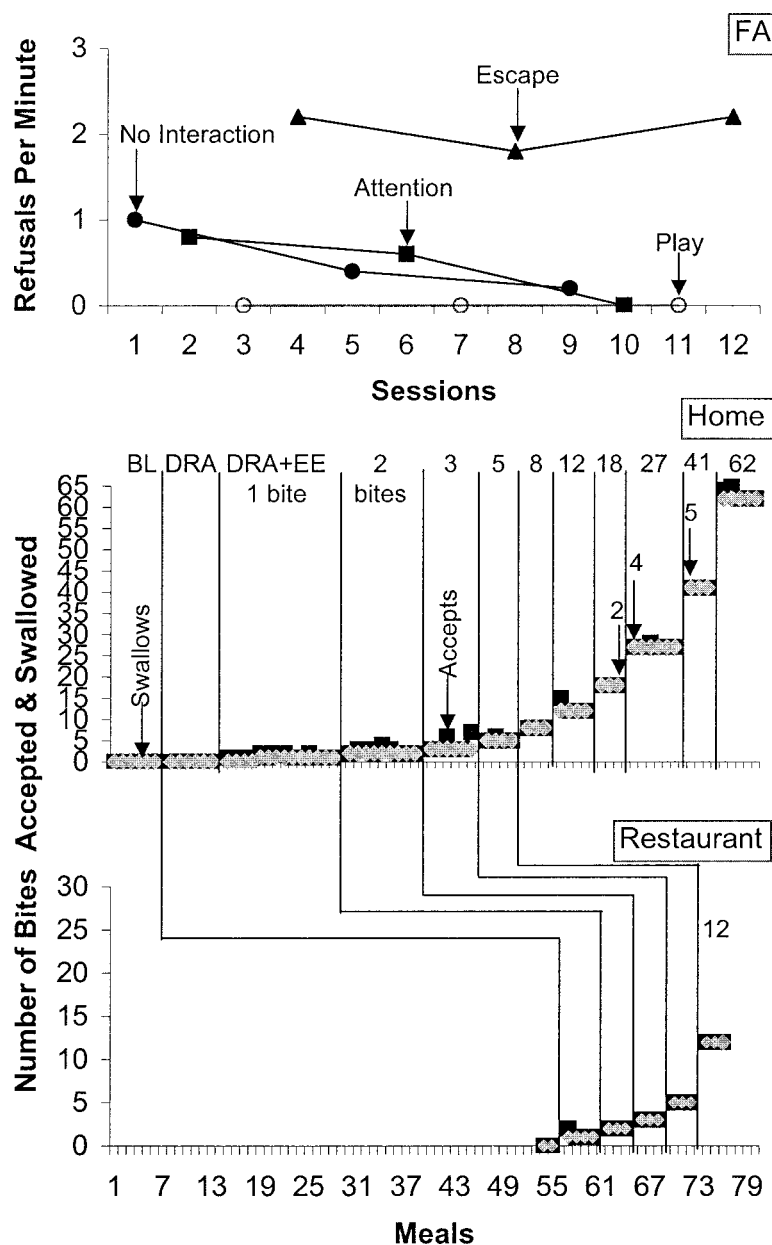


Figure 1. Food refusals per minute during the functional analysis (top panel), and number of bites accepted and swallowed each meal at home (second panel) and in a restaurant (third panel). Numbers between phase changes indicate how many swallows were required during demand fading. Arrows represent the number of nonpreferred foods targeted during each meal at home.

five NPFs). As Jack's nonpreferred meals increased in bite requirements, the amount of HPFs provided was simultaneously decreased. An identical procedure was also conducted at the restaurant, with only two exceptions. Bites of a hamburger were rein-

forced with only chicken nuggets and french fries, and bite requirements were increased in the following sequence: 1 bite, 2 bites, 3 bites, 5 bites, and 12 bites.

Follow-up. Jack's mother fed him normal-sized portions of novel foods and continued

implementing DRA plus escape extinction. Dinner was terminated contingent on Jack eating all the food on his plate or swallowing 62 bites (whichever occurred first). Data were collected at 2, 4, 6, and 12 weeks after intervention.

RESULTS AND DISCUSSION

Figure 1 displays results of the functional analysis and the number of bites accepted and swallowed during treatment. Jack engaged in food refusal during the escape condition more than any other condition ($M = 2.06$ responses per minute), suggesting that food refusal was maintained by negative reinforcement.

During baseline and DRA, Jack never accepted or swallowed NPFs in either setting. During the first meal using DRA in combination with escape extinction and demand fading, Jack accepted (but expelled) one bite of NPF within the first 2 min of presentation and began swallowing bites during the fifth meal. At home, Jack eventually swallowed 62 bites composed of five different NPFs presented together on a plate. At the restaurant, Jack eventually swallowed 12 bites (an entire hamburger). During all follow-up visits, Jack consumed novel foods. Jack also began to feed himself on most occasions.

This study demonstrated that functional analyses of food refusal can be helpful in the identification of effective treatments for food selectivity. In addition, this study identified an effective treatment package implemented by parents with little supervision (investiga-

tors were present at only two to three dinners per week). Positive results were obtained in multiple settings and over extended periods of time, demonstrating both generalization and maintenance of the behavior change. Implementation of a treatment package composed of DRA, escape extinction, and demand fading was reported by Jack's parents to be acceptable to implement because Jack was required to eat only a small portion at first while he still managed to get enough calories. Future research should conduct a component analysis of this treatment package to identify which mechanisms were necessary for behavior change. In addition, future research should examine methods for thinning reinforcement systematically, rather than arbitrarily delivering fewer HPFs as the consumption of NPFs increases, as was done in this study.

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