



THE SUPPLEMENT

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EATING BEHAVIORS

This issue of CF Nutrition Source focuses on eating behaviors in children who have CF. The Cystic Fibrosis Foundation (CFF) recommends that infants, from birth to 2 years maintain weight for length at the 50th percentile or greater, and children over the age of 2 maintain a body mass index of 50th percentile or greater. How can the registered dietitian help parents who have children with CF achieve these goals? For an excellent review of eating behaviors and behavioral treatments in CF, the reader is referred to the paper by Stark. (1)

FEATURED PAPERS:

A randomized pilot study of behavioral treatment to increase calorie intake in toddlers with cystic fibrosis. Powers SW, Byars KC, Mitchell MJ, Patton SR, Schindler T, Zeller MH. Children's Health Care. 34(4):297-311, 2003. **Objective:** To examine the effect of a behavioral treatment to increase caloric intake in toddlers who have CF. **Subjects:** 12 toddlers, 12-36 months of age and their parents. **Design:** Comparison group, intervention study. **Methods:** One group received nutrition intervention and the other group received nutrition plus behavior intervention. **Results:** Eight families completed the study. Both groups had similar increased caloric intake. **Conclusions:** Intensive nutrition counseling during frequent patient contact can result in increased caloric intake.

Family functioning in school-age children with cystic fibrosis: An observational assessment of family interactions in the mealtime environment. Janicke DM, Mitchell MJ, Stark L. J Pediatr Psychol. 30(2):179-186, 2005. **Objective:** To examine mealtime function in families of children with and without CF. **Subjects:** 28 families of children with CF and 27 families of non-ill, age-matched peers; mean age for CF children was 8.5 yrs, range 6.0 - 12.9 yrs, 54% male. Mean age for the non-ill children was 8.7 yrs, range 5.1 - 12.5 yrs. **Design:** Matched, comparison study. **Methods:** Use of standardized system to rate family function during videotaped home dinners. **Re-**

sults: Overall, families of children with CF rated as "unhealthy" functioning. **Conclusions:** The family system of school-age children who have CF may be negatively affected during mealtime. Interventions need to be family and child-centered.

A tool to individualize nutritional care for children with cystic fibrosis: Reliability, validity, and utility of the CF Individualized NuTRitional Assessment of Kids Eating (CF INTAKE). Powers SW, Patton SR, Henry R, Heidemann M, Stark LJ. Children's Health Care. 34(2):113-131, 2005. **Objective:** To describe a new tool to assess the CF diet. **Subjects:** 91 children with CF; mean age 4.5 yrs \pm 3.2; 54% male. **Design:** Cross-sectional study. **Methods:** Families kept 3-day weighed food intake records which were then evaluated using the CF INTAKE tool. **Results:** Recommended meals were missed 10% of the time; more than half of all foods consumed were low fat; caloric intake was maximized in 1/3 of foods eaten; and enzymes were omitted 15% of the time. **Conclusions:** The CF care team can use the CF INTAKE tool to identify specific areas to target during individualized nutritional counseling.

SPECIAL POINTS OF INTEREST:

- The Cystic Fibrosis Foundation (CFF) recommends that infants, from birth to 2 years maintain weight for length at the 50th percentile or greater . . .
- Intensive nutrition counseling during frequent patient contact can result in increased caloric intake
- The family system of school-age children who have CF may be negatively affected during mealtime. Interventions need to be family and child-centered.

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REVIEW

A delicate balance exists between parent and child in feeding and eating. Satter described the feeding relationship as a reciprocal one that starts at birth and continues through adolescence. Issues from either the child, such as being a fussy eater, or parent, such as being a very nervous parent, can upset the delicate

IN CF, IT HAS LONG BEEN KNOWN THAT EATING, AND IN PARTICULAR MEALTIMES, CAN BE SOURCES OF STRESS TO THE FAMILY.
(BLUEBOND-LANGNER)

balance. (2) The feeding relationship evolves as the infant moves through childhood and the teen years. Parents who are sensitive to the developmental changes may experience fewer eating-centered problems with their child. Birch (3) stated that the foundation for teen and adult eating styles is laid in childhood as the parent and child work through issues of control regarding feeding and eating.

Studies on healthy, non-CF children found that parents who exerted excessive pressure on their children to increase appropriate food intake could have the opposite effect. (4) A child may actually become a "picky eater," eat less, eat fewer healthy foods, and have a lower BMI percentile. (5) Coercive feeding practices just do not work. (6)

In CF, it has long been known that eating, and in particular mealtimes, can be sources of stress to the family. (7) Observational studies of food intake of children and mealtime function of parents and children have

provided extensive information. Crist, et al. (8) noted that caloric intake is negatively correlated with mealtime behavior problems. Stark and colleagues have a body of literature that describes food intake and mealtime behavior. These studies were undertaken by the developmental stages: infant/toddler; preschool; and young child. On the whole, infants and children with CF ate more than their nonaffected peers yet did not meet CFF caloric recommendations; and family meals were problematic. As parents engaged in more negative mealtime management, such as coaxing, prompting, commanding and feeding of younger children, the child's undesirable behaviors increased. (9) Children with CF tended to spend more time at meals, took fewer bites per minute, and spent less time eating (1, 10). Videos of all members of the family during dinner revealed a lower rating of family functioning at mealtimes. (Janicke, 2005, 11) In addition to mealtime challenges, parents served many low calorie foods; did not add high calorie items to foods; and children missed meals, snacks, and enzymes. (Powers, 2005)

Intervention research incorporating behavior modification to increase caloric intake has demonstrated improved caloric intake (12). Incorporating findings from their observational studies, Stark and colleagues (1) designed behavioral intervention studies that used principles of behavior therapy such as reinforcement, differential attention, contingencies, and time out. Parents were taught to keep food intake records, optimize calories, use sticker charts, and use a system of rewards to increase food intake and decrease mealtime stress. (Powers, 2003, 1) Parents trained in these techniques are able to maintain effectiveness for at least two years. (13, 14)

CLINICAL APPLICATIONS

The RD is uniquely positioned to assist parents in establishing family eating dynamics that promote a pleasant mealtime atmosphere and optimal food intake. In her books, Satter provides the basis for establishing healthy eating relationships. Because all children, including those with CF, exhibit behaviors specific to their developmental stage it is incumbent upon the RD to understand eating behaviors across the pediatric continuum and apply that knowledge when counseling parents.

Children seem to demonstrate fewer problems if par-

ents maintain a routine surrounding eating. (2) The routine may include: 1. Consistent schedule of meals and snacks; 2. No helping self to meals and snacks, especially for young children, 3. Limited mealtime distractions, such as television, radio, computer games, and toys, and 4. Parental modeling of desired mealtime behaviors. Using anticipatory guidance, motivational interviewing, and proactive counseling, the RD may help families avoid eating problems. Simply telling parents that their child needs to eat more or providing information on the caloric content of foods may not correct inadequate caloric intake.

CLINICAL APPLICATIONS (CONT.)

Behavioral interventions that the RD can incorporate into routine patient care include teaching parents to:

1. Compliment behaviors compatible with eating and ignore those which are not; 2. Design a system of rewards for achieving eating goals; 3. Gradually increase calories one meal or snack at a time, and 4. Limit mealtimes to about 20 minutes. (15, 16)

But, if a child already has an established pattern of stressful eating behaviors, then a formal program of behavior modification, with a behavioral psychologist, may become necessary. It is important that the RD be sensitive to eating situations that are the result of distorted family dynamics or question-

able parental functioning. Such situations require referral for appropriate therapy.

IF A CHILD ALREADY HAS AN ESTABLISHED PATTERN OF STRESSFUL EATING BEHAVIORS, THEN A FORMAL PROGRAM OF BEHAVIOR MODIFICATION, WITH A BEHAVIORAL PSYCHOLOGIST, MAY BECOME NECESSARY.

In closing, all families of children with CF benefit from anticipatory guidance regarding feeding, eating, meals and snacks, as provided by the RD during Center visits. Assisting parents through the developmental challenges related to eating behaviors in CF is part of the RD's scope of practice.

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