

# Eating and Emotions in Obese Toddlers

## *Facilitating Self-Regulation*

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**D**URING THE PAST 2 DECADES, the number of overweight children in the United States has increased significantly and steadily. Twin and adoption studies by Stunkard, Foch, and Hrubec (1986) have pointed to a high heritability of obesity; up to 80% of the differences in *adiposity* (body fat) have been attributed to genetic factors. However, the rapid increase in the prevalence of obesity in children and the fact that the increase seems to start during the preschool years (Ogden et al., 1997) cannot be explained by genetic factors alone. As Epstein, Roemmich, and Rayor (2001) point out, in most cases it is

believed that genetics provides a predisposition to becoming obese, but this predisposition requires interacting environmental factors to increase the probability of obesity. Because parents provide young children with both genetics and environment, researchers and clinicians need a better understanding of the characteristics of the family environment that cause obesity.

### The Regulation of Eating

**T**HE WORK BY BIRCH and colleagues (Birch & Fisher, 1995, 1998; Birch, Johnson, Andresen, Peters, & Schulte, 1991; Birch, Johnson, Jones, & Peters, 1993; Birch, McPhee, Shoba, Steinberg, & Krehbiel, 1987) has shed some light on children's ability to regulate their food intake according to their energy needs and also on the important role that parents play in the child's development of self-regulation (for reviews, see Birch and Fisher, 1995, 1998). Inspired by the early work by Clara Davis (1928), who had demonstrated that infants who selected their own diet grew well and were healthy, Birch and colleagues (1991) demonstrated that children 2–5 years of age, when given nutritious choices, can select an adequate diet without adult supervision. They further demonstrated that when children 2–5 years of age were given a replacement of regular fat by a nonenergy fat substitute, they adjust their energy intake by eating more. Thus, the fat substitute did not reduce their 24-hour

energy intake because the children spontaneously made adjustments to their diets to meet their energy needs (Birch et al., 1993).

However, additional studies on parental feeding practices indicate that environmental factors can interfere with this internal regulatory ability. Birch and colleagues (1987) tested young children's ability to adjust food intake in response to differences in energy density in two different child-feeding experiences. In one condition, the children were allowed to eat in accordance with their hunger and satiety feelings. In this situation, children showed clear evidence of adjusting their intake in response to the energy density differences in the first course. Thus, children who ate a high-calorie first course ate less later; children who ate a low-calorie first course ate more to make up for the less energy-dense food. In the other eating experience, children were rewarded for the amount eaten during the meal. When rewarded for eating, all evidence of responsiveness to the energy content of the foods disappeared, and children significantly increased their food intake.

In additional studies, Johnson and Birch (1994) further explored the links between child-feeding practices and children's responsiveness to energy density. They found that (a) parents who reported using a high degree of control over what and how much their children ate had children who showed relatively little evidence of energy regulation and (b) high degree of parental control was

associated with low self-control in children. The study by Fisher and Birch (1999) found that young children's weight for height predicted the degree to which mothers reported restricting their child's intake of snack foods, indicating that parents of overweight children may try to control their children's access to high-calorie foods. However, controlling feeding practices adversely affects children's ability to self-regulate food intake, which may contribute to their weight gain. This finding was further supported by a more recent study by Spruijt-Metz, Linquist, Birch, Fisher, and Goran (2002), who found that maternal child-feeding practices, pressure to eat, and concern for child's weight explained 15% of the differences in total fat mass in a sample of both African American and Caucasian children. Ethnicity, sex, and socioeconomic status did not contribute significantly to differences in total fat mass. These studies suggest that infants and young children have an innate capacity to regulate their food intake according to their energy needs. However, parental child-feeding practices can interfere with the child's internal regulation of eating.

### Abstract

**Infants and young children have the ability to regulate their food intake according to their energy needs, and parents play an important role in facilitating their children's self-regulation. When overweight children learn to eat in accordance with feelings of hunger and fullness and learn to soothe themselves without eating, they will reduce their caloric intake to meet their energy needs and normalize their weight. The treatment of a 2-year-old with morbid obesity illustrates these principles.**

## A Developmental Model

**C**HATOOR AND GANIBAN (2004) used a developmental model, described in this section, to understand the child's learning of self-regulation of eating and emotions as well as parents' important role in this process. Between 6 months and 3 years of age, both motoric (muscle) and cognitive maturation enable the infant to function with increasing physical and emotional independence. As the infant becomes physically more competent, daily feeding experiences present issues of autonomy and dependency between parent and child. For example, as infants make the transition to self-feeding, mother and infant have to negotiate who is going to place the spoon in the infant's mouth. Parents and caregivers must decide how much autonomy they will grant the child while learning to self-feed. Consequently, this time period is critical for the development of self-regulation of eating. Self-regulatory eating patterns established between 6 months and 3 years of age are expected to have a long-term influence on the child's capacity to maintain appropriate caloric intake.

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In addition to the negotiation of autonomy during feeding, infants also must learn to differentiate between internal sensations related to eating (hunger vs. fullness) and emotional experiences (wish for affection, feelings of anger or frustration). It is, therefore, of utmost importance that caregivers recognize the infant's hunger and satiety cues and respond accordingly. For example, parents should offer food when the infant signals hunger and should not offer food when the infant is upset and needs affection or calming. Likewise, parents should end the meal when the infant is satiated and should not insist that the infant keep eating until the plate is empty.

If the parents consistently differentiate the infant's hunger and satiety cues and respond appropriately, they will support the infant's internal regulation of eating. The children will become attuned to internal sensations of hunger and fullness and will be able to tell the difference between these sensations and other internal sensations such as anger, sadness, and pleasure. As such, they will recognize and develop different patterns



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of behavior in response to hunger and fullness sensations than they do in response to their emotions. However, if parents respond to their infant's emotional needs by feeding the infant, the infant will confuse hunger with emotional experiences and will learn to eat when sad, lonely, frustrated, or angry. The infant's eating will be externally regulated by the infant's emotional experiences rather than by internal cues of hunger and fullness.

Ideally, infants give clear signals, and parents interpret them correctly and allow their infants increasing autonomy during feeding. However, if an infant gives poor hunger cues, as is seen in infantile anorexia, the parents can become anxious and confused about how to get their infant to eat adequate amounts of food (Chatoor, Ganiban, Hirsch, Borman-Spurrell, & Mrazek, 2000), and they try to override the infant's food refusal. In the case of overweight toddlers, if the children emit strong hunger signals but emit weak signals of satiety, the parents may try to limit the child's food intake when they feel that the child is overeating and does not seem to know when to stop. Parents may also further blur the line between the child's hunger sensations and emotions by trying to soothe the children through feeding them—that is, by using special foods (e.g., sweets) as rewards or to express their love and nurturance. Parents may also model the use of food for self-soothing. In each case, children learn that eating can alleviate negative emotional states while generating positive emotional states. When this occurs, attention to true hunger and fullness sensations are eclipsed or are confused with emotional states.

Some children may be more vulnerable to developing emotion-triggered eating pat-

terns than others. Carey (1985) found that 6-month-old infants with fast weight gain were more likely to have negative mood, and studies by Wells and Davies (1996) and Wells and colleagues (1997) related temperament characteristics to weight status. These studies suggest that high negativity and/or low frustration tolerance may predispose children to overeat. Clinical observation has also raised the question of whether some obese toddlers gain so much enjoyment from eating that they crave to eat and that it is hard for them to stop this pleasurable activity. In summary, both the child's and the caregiver's temperamental and personality characteristics can interfere with the child's self-regulation of feeding in response to the physiological energy requirements of the child and can lead to external regulation of eating in response to the child's emotional needs.

## The Intervention

**T**HE GOAL of the proposed intervention is to guide parents in helping their young children learn internal regulation of eating and emotions. The intervention is based on the observation that when overweight children learn to eat in response to feelings of hunger and fullness, and learn to handle strong emotions without eating, they will reduce their caloric intake according to their energy needs and thus will normalize their weight.

The intervention is directed toward the parents who become the agents of change. First, the clinician conducts an evaluation to explore the child's eating behavior and ability to self-soothe without eating. The parents are invited to come in for a family meal with the child; this meal is observed by the cli-



nician from behind a one-way mirror. Next, the therapist shares the observations of the child's behavior with the parents and discusses how the child's behavior in the office compares with the parents' experience of the child at home. The clinician also explores the parents' own eating patterns and the roots of their own eating behavior in their childhood. In addition, they discuss the parents' ability or difficulty in setting limits for their child as well as the way their own parents handled discipline.

### ***Restricting appealing foods focuses children's attention on the restricted foods and increases their desire to obtain and consume those foods.***

After this groundwork has been laid, in the following session, the clinician gives parents specific feeding guidelines to facilitate internal regulation of eating in their child. The first goal is to allow their child to experience hunger. Thus, parents offer food at regular 3- to 4-hour intervals, and the child is not allowed to eat in between these scheduled mealtimes and snack times to eliminate eating without feeling hungry. During mealtimes and snack times, the child is offered small portions of food but is allowed to ask for additional helpings until she is full and does not ask for any more food. Allowing the child to decide to keep eating or to stop is critical because parents have a tendency to either (a) ask children to eat everything on the plate or (b) limit the child's intake when they see the child consuming large portions of food and feel that the child does not know when to stop. In both situations, children do not learn to recognize satiety; eating small portions until the child feels full encourages the child to pay attention to inner signals of satiety.

Another concern is that children eat too much high-caloric dessert or "junk" food. Some parents try to limit children's intake of these foods by holding the dessert until the end of the meal or giving these foods only as special treats, whereas other parents provide unrestricted access to these foods. As Fisher and Birch (1999) have shown, restricting appealing foods focuses children's attention on the restricted foods and increases their desire to obtain and consume those foods. Parents should help their children learn to eat these foods in moderate amounts by offering these special foods periodically along with other more healthful foods and by allowing the child to eat a reasonable amount of the dessert food first to neutralize the spe-

cial meaning of these foods. If the child asks for more of the dessert food, parents can say, "That's all Mommy and Daddy have today, but you can eat more another time." Also, when sweets are part of the meal, and children can eat the treat first if they choose, the candy loses the additional appeal of being something that is special and unrelated to hunger.

Finally, the clinician encourages parents not to praise or criticize their child for how much or how little they eat. Parents should also abstain from using food as a treat, as a reward, as an expression of their affection, or as a way of calming the child. Parents need to understand the power of *associative learning*, or how emotional experiences in association with eating can exercise strong control over the child's eating.

After the discussion of each of these guidelines, the clinician prepares parents to anticipate initial protest and frustration from their child. When the child cannot eat any more between mealtimes and cannot use food for self-calming or for special pleasures, the child may become irritable and throw temper tantrums. The clinician instructs the parents to deal with the child's protest and frustration by using a particular time-out procedure that teaches the child to accept limits and to learn self-calming. The emphasis is on the child's learning to self-calm when frustrated. The child is praised for self-calming and is asked to think about what he did wrong, and when the child comes out of time-out, the child has to correct the objectionable behavior.

After helping to facilitate their toddler's internal regulation of eating and emotions, some parents may need additional help learning how to provide a healthy diet and how to encourage physical activity. As Horodynski, Hoerr, and Coleman (2004) reported, knowledge of nutritional facts alone is insufficient to change eating habits. Consequently, these nutritional suggestions are introduced toward the end of the treatment, only after the parents have developed a therapeutic alliance with the therapist and have been able to work on their toddler's self-regulation.

In general, the intervention works best if the parents first come in for two sessions, each lasting 2 hours. The initial session consists of the evaluation, and the second session introduces the feeding guidelines and training on the time-out procedure. Then, parents take a few weeks to implement changes at home by establishing the meal schedule and practicing the feeding guidelines. At the first follow-up appointment, the parents discuss the child's reaction to the new rules and any difficulties that they may have encountered. Depending on the individual family and the child's difficulties in adjusting to the new rules, the clinician schedules further appointments to observe the family meal or to problem solve



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with the parents. As mentioned above, for some parents, nutritional counseling is introduced toward the end of the treatment, once the child has learned to regulate her eating internally. For many families the intervention requires only 6–10 hours in the clinic setting over a period of several months before the child has adjusted to the new eating environment and is able to regulate herself.

### **Anna's Story**

**A** NNA (whose name has been changed to protect her identity) was already morbidly obese at the age of 2 years. Her parents were concerned that "she wants to eat all the time" and that she was too heavy to run or climb.

### **Initial Evaluation**

Anna's parents described how, even as an infant, Anna would drink 8-ounce bottles of milk and more, if allowed. She gained weight rapidly and was at the 90th percentile during the first year of life. However, during the second year of life, when she was introduced to table food, she expressed a desire to eat whenever she saw food or saw anybody eating. According to the parents, "she did not know when to stop eating." They tried to restrict her food intake during mealtimes, and they tried not to eat in front of her to curb her eating; however, she would throw temper tantrums when they did not give her more food. Her weight climbed significantly above the 90th percentile, and her parents and the pediatrician became concerned that she had some genetic or medical problem that produced this insatiable appetite and rapid weight gain. Anna underwent a comprehensive genetic and medical workup, including a magnetic resonance imaging

(MRI) of the brain to rule out a brain tumor. After all of the tests came back negative, the parents sought psychiatric help.

Anna's cognitive development was excellent. She spoke in sentences, and could easily hold a conversation. However, her motor development was delayed. Although she had learned to walk at 13 months of age, she had never learned to run or climb because of her weight. Furthermore, her gait was quite unusual; she shifted her weight from one leg to the other because of her large size.

The family history revealed that both parents were successful professionals and had one older child who had no eating problems. The mother was of normal weight and had no eating concerns of her own. The father described that he enjoyed eating and felt that he was a little overweight but that eating and weight had never been an issue for him. However, the parents described the father's brother as morbidly obese and suffering impairment from his obesity. The parents were very worried that their daughter would suffer like her uncle.

In addition to understanding the child's history, the assessment included an observation of Anna with her parents during a meal and during play in order to observe Anna's behavior around food. While Anna was engaged with her parents in a conversation, she ate at a normal pace. However, the moment the parents talked to each other and she was left out, she sought to engage their attention by eating rapidly and asking for more food. After the mother and Anna had completed their meal, the father got some food from the cafeteria for himself and started to eat in front of Anna and her mother to see what Anna would do. Anna immediately started begging her father for food and

was not able to engage in anything other than repeatedly asking her father to give her food from his plate.

After the meal, Anna and her parents were observed during play. Anna was engaged in high-level symbolic play with the dolls and did not ask for any food until the therapist entered the room, told her that playtime was over, and asked her to pick up the toys. She responded, "I am hungry," and started crying when told that now was not the time to eat and that she had to pick up the toys.

At the end of the session, the therapist shared with the parents the observation that Anna seemed to enjoy eating so much that she asked for food not only when she was physically hungry but also to satisfy her hunger for attention and for self-calming when frustrated.

### *Intervention*

At the next session, the therapist went over the observations from the evaluation and encouraged the parents to share their own observations of their daughter. After this discussion, the therapist and the parents agreed on the treatment goal: to help Anna recognize hunger and fullness and to separate these physiological sensations from emotional needs and feelings, thus enabling her to eat in accord with her energy needs. The therapist went over each of the feeding guidelines and discussed how the parents could implement them. The parents worked on a meal and snack schedule that could accommodate all family members, including their older child. They agreed to adhere to the same feeding guidelines that they were imposing on Anna and their older child. At the end of the session, the therapist went over the time-out procedure because it was clear that Anna would not accept these changes without protest.

The parents returned after 2 weeks and reported, with great surprise, that Anna had learned the new rules very quickly. They described that for the first week, she asked for third and fourth helpings, but recently she had begun to ask for two helpings only; furthermore, on one occasion, she was satisfied with one helping only. She had protested initially, when she was not allowed to have any juice or snack other than water between meals, and they had to put her in time out. She screamed for more than an hour but finally calmed herself and did not ask for any juice or snack food after that. However, she shifted her protest to screaming when her diaper had to be changed and refused to hold her mother's hand when crossing the street. Her parents were reassured that the time-out would be just as helpful for Anna's other unacceptable behaviors. The parents were very pleased with the progress they had made and asked for a telephone follow-up in 1 month.

### *Follow-up*

During the telephone follow-up, the parents described how well things were going and that Anna had gone from "3 chins to 2 chins." They agreed to call if they ran into any problems in the future. One year later, the father called and asked for an appointment for Anna. He described that she had done very well in regard to eating and that she was now of "normal" weight. However, her parents were concerned because she was so explosive and unable to calm herself that they were all tiptoeing around her, out of fear that they would set her off.

When the therapist saw Anna, she had grown into a beautiful 3-year-old girl of normal weight who had a remarkable command of the English language. However, when the therapist wanted to talk with her about her temper tantrums, she stated, "I do not want to talk," threw herself on the floor, and screamed uncontrollably. The therapist asked her mother to leave the room and to observe from behind the mirror, while the therapist sat with Anna, who lay on the floor in a butterfly position, face down, kicking her legs, thrashing her arms, and screaming at the top of her lungs for 25 minutes. When she seemed to tire and was just sobbing periodically, the therapist asked her whether she could get up and sit on the little chair. However, without looking at the therapist, she stated "Don't talk" and continued to lie on the floor, face down, for another 10 minutes. When she was finally calm, the therapist said in a soft voice, "You calmed yourself. It was so hard, but you can do it. I want to tell your mother because she will be so proud of you, that you can calm yourself." Anna rose from the floor and looked at the therapist in amazement, her eyes saying, "Yes, I can do it, after all." The



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mother came in and praised her for calming herself, and Anna smiled. When leaving the office shortly afterward, while going down the long hallway to the lobby, the mother and the therapist were talking to each other when Anna quietly took the therapist's hand.

The mother called a few weeks later, saying that from that day in the office, Anna was able to calm herself within a few minutes and that she was a much happier child. The therapist did not hear from the family again until Anna was 6 years old. Her father called the office and stated that this time he was calling for their older child, that Anna was doing well with eating and weight, and that she had become their "easy" child.

## Discussion

ANNA ILLUSTRATES some important points regarding obesity in young children. Although Anna's parents and her older brother were of normal weight, a strong genetic predisposition for obesity can be postulated because of both the family history of an uncle with morbid obesity as well as Anna's insatiable appetite beginning in the first year of life. Although several studies by Stunkard and colleagues (1986) have revealed that up to 80% of the variance in obesity can be explained by genetic factors, it is not clear

how these genetic factors are expressed in the individual's eating behavior. Anna's craving of food, her wish to eat whenever she saw food, and her use of food to calm herself and to feel better is suggestive of addictive behavior. A young obese adult with multiple addictions once explained to her therapist that for her food was the most difficult addiction to overcome because she did not *have* to drink alcohol or smoke cigarettes, but she had to eat. Once she started eating an appealing food, it was "the hunger in the mouth" that propelled her to continue eating without feeling the fullness in her stomach. She described "the hunger in the mouth" as an intense pleasurable experience that she could not resist.

Anna's eating behavior revealed a similar dynamic, and her voracious eating led her to be severely overweight at the young age of 2 years. However, Anna's striking response to the intervention—her ability to learn relatively quickly to recognize hunger and fullness—speaks to a plasticity of eating behavior that is unique to this young age. Clearly, parents play an important role in shaping young children's eating behavior. Anna's parents were extraordinary in how they could apply what they had learned about facilitating internal regulation of eating and emotions and adjust their lifestyle to help their child. They introduced reg-

ular family meals with Anna, and they used the time-out procedure to teach Anna to accept limits and to calm herself when she was not allowed to eat between meals. They were remarkably competent, and they were not afraid to ask for help when they ran into difficulties. Anna's success can be an inspiration for parents who struggle with their children's eating behavior. Children need to learn how to listen and respond to their body's cues of hunger and satiety as well as identify, feel, and express their emotions as separate from hunger and eating. Only then will they gain the skills necessary to sustain healthy habits throughout their lives. †

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