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Appendix I

Children and Food Regulation: The Research

Children know how much they need to eat and, virtually from birth, they are resilient and resourceful regulators. University of Iowa research shows that when infants over age 6 weeks are fed overly concentrated formula or overly dilute formula, they simply eat less of the concentrated formula or more of the dilute formula and grow consistently. Until age 6 weeks, children compensate for variations in formula concentration, but not completely. After 6 weeks, they compensate completely.[1] From age 1 week to 9 months, Houston anthropologist Linda Adair followed the formula and solid-food intake of a little boy being fed on demand. Although the infant ate three times as much some days as other days, and even though his food intake was lower than 90 percent of other babies, his growth was consistent and his weight was average. When he started eating solid foods, he took less formula and continued to regulate well.[2]

Even premature babies can regulate. A study conducted by newborn intensive care unit nurses shows that medically stable infants who weigh between 1,800 and 2,500 grams at birth are able to give signs to their care providers indicating when they are hungry and when they are full. The demand-fed babies grow better on fewer calories than schedule-fed babies.[3]

The amount children eat varies throughout the day. Children are able to compensate for variations in the amounts they eat at mealtimes and snack times.[4] Children automatically seek out high-calorie foods—those containing sugar and fat—when their calorie needs are particularly high.[5] Colorado Public Health studies that followed children from year to year found that the amounts they eat as well as the composition of their food intake varies considerably. Some years, for instance, they eat far less fat, and other years they eat far more.[6]

You can't predict how much a child needs to eat. As with adults, calorie needs vary widely from child to child. Children of all ages who look alike and act alike may vary from one another in their calorie requirement by as much as 40 percent.[7] This is a result of children's constitutional endowment, not because of poor patterns of food consumption or activity. Any assumptions you make about children's calorie intake based on looking at them are likely to be wrong. Studies of young infants by Harvard nutritionist Jean Mayer show that the fattest babies tend to eat the least and are least active, and the leanest babies eat the most and are most active.[8]

Distortions in Energy Regulation

Children's considerable food regulation capability depends on their being supported with the division of responsibility in feeding throughout their growing-up years. Both over-control of the child's prerogative in eating and under-support of the child's access to food can cause disruptions in food regulation and growth. Children

of authoritative parents—those who are parented well—grow appropriately, whereas children of permissive, neglectful, or overly strict parents are at increased risk of overweight.[9] Both mothers and fathers who are concerned about child overweight or have anti-fat attitudes are likely to restrict children's food intake and raise fatter children.[10] Being overcontrolling with feeding—trying to get children to eat more or less than they want—interferes with children's knowing when they are hungry and when they are full and contributes to undereating as well as to overeating.[4]

Sugary and fatty foods are often blamed for making children overeat. But children and other people who have structure and support for eating and whose internal regulators are intact can get full without overeating when they are offered sugary and fatty foods, the same as they do when they are offered other foods. But if sugary and fatty foods are forbidden and purged from the family food supply, children overeat on them when they get a chance and are fatter than children whose parents are more matter-of-fact about including them in meals and snacks.[11] Restricting a child's food intake tells the child that his weight is unsatisfactory. A child who gets idea that he is overweight feels bad in all ways: not smart, not physically capable, and not worthwhile.[12]

Distortions in feeding dynamics can start at birth. An Edinburgh, Scotland study with normal, well-born infants shows that parents of smaller-than-average babies tend to be more active in feeding than parents of average sized babies. The more active the parents, the less well the babies grow. Since it is easier to get pushy with bottle-feeding than with breastfeeding, the tendency to be overactive shows up more with bottle-feeding parents than with those who breastfeed.[13]

A few children suffer from growth problems serious enough to be diagnosed as Nonorganic Failure to Thrive (NOFTT). In many if not most cases, disruptions in the feeding relationship are at the root of the problem. Clinicians in a Buffalo, New York, hospital found that half of infants hospitalized with growth failure had feeding problems.[14] Disruption in the achievement of developmental tasks can undermine a child's ability to eat and grow normally. In her work with infants and toddlers, Washington, DC, Children's Hospital psychiatrist Irene Chatoor found that disorders of homeostasis, attachment, and separation/individuation can contribute to NOFTT and that toddler NOFTT is related to mother-child interaction.[15]

Clinical observations indicate that letting children graze for food can make them either eat too much and grow too rapidly, or eat too little and grow too slowly. Psychologist Kay Toomey found in her clinical work with poorly eating toddlers that toddlers fed in a structured fashion eat 50 percent more than when they are allowed to graze for food.[16] Texas A&M anthropologist Katherine Dettwyler observed New Guinea toddlers roaming the village in groups and eating only if they happened to be present in a home when food was available. Adults did not, in any systematic way, see to it that toddlers got fed. Growth rates of children in New Guinea were very slow.[17]

Parents' concerns about their own weight as well as their children's contribute to distortions in feeding. Mothers report using more restrictive feeding practices when they are invested in weight and eating issues overall, when they perceive daughters as overweight, when they are concerned about daughters' weight, and when daughters are heavier. Mothers also report using more pressure in child feeding when daughters are thinner, and when mothers perceive daughters as underweight.[18] This interference with feeding has been demonstrated to be counterproductive.[4,19]

Children whose food intake is restricted tend to become food-preoccupied and overeat when they get a chance. Children who are urged and coerced to eat more than they want frequently become resistant to eating and undereat when they get a chance. However, whether a child eats too much or too little in response to parental pressure with feeding depends on who gets the upper hand with feeding. The submissive child of a controlling parent may be underfed or overfed in accordance with the parent's wishes. On the other hand, a more aggressive child may resist the parent's feeding efforts and eat in the very way that the parent is trying to prevent.

The tactics parents use to control their own food intake rub off on children, for good or ill. Parents who overcontrol their own eating, with either amount or type of food, tend to throw away all controls from time to time and be fatter than if they ate consistently. In the Framingham

children's study, parents who display high levels of disinhibited eating, especially when coupled with high dietary restraint, appear to foster excess weight gain in their children.[20] Children of parents who restrain and disinhibit also tend to disinhibit and are relatively fat.[19] Associations between parents' restrictiveness with respect to their own eating behavior and adolescent eating attitudes and behaviors have not been examined. However, parental attitudes and behaviors undoubtedly play a role in precipitating adolescent characteristics that do correlate with eating disorders: high incidence of dieting behavior, pressure to be thin, modeling of eating disturbances, appearance overvaluation, and body dissatisfaction.[21]

On the other hand, adolescents who report parental meal management behaviors that involve taking leadership and giving autonomy are less likely to engage in disordered eating. Adolescents do better with eating when parents assign a high priority to family meals, provide family meals more frequently, and maintain a positive atmosphere at mealtimes.[22] Regardless of their weight to begin with, 13- to 16-year-olds using both healthful and unhealthful weight-control behaviors are four or five times more likely to have gained too much weight 5 years later than adolescents not using any weight-control behaviors. "Healthful" behaviors include exercising more and eating more fruits and vegetables and less fat and sweets. Unhealthful behaviors include fasting or eating very little food; using a food substitute such as a powder or a special drink; skipping meals; using diuretics, laxatives, or diet pills; and vomiting. Teenagers who don't diet don't gain too much weight.[23]

The point? Children know how much they need to eat, but they need help from adults if they are to act on and retain that capability. Children need to be able to tune in on what goes on inside of them and be aware of how hungry or how full they are. If adults give them insufficient support—if they don't offer food regularly or if they fail to offer appropriate situational and emotional support at feeding times—children can have trouble knowing how hungry or how full they are and can eat too little or too much. If adults are too active and controlling in feeding and interfere with the children's prerogatives of whether and how much they eat of what parents provide, children experience so much static and interference from the outside that they can't tune in on their sensations of hunger, appetite, and satiety. Sometimes children go along with pressure from the outside and eat more or less than they really want. Sometimes they fight against that pressure, and, again, eat more or less than they really want. Either way, they lose sight of how much they need and make errors in regulation. They eat too much or too little, and they get too fat or too thin.

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