



PHOTO: JANET BROWN McCracken

WHAT CAN WE DO TO PREVENT CHILDHOOD OBESITY?

JULIE LUMENG

*Center for Human Growth and Development
University of Michigan*

Childhood obesity is a real and pressing public health problem in the United States. Moreover, the obesity epidemic is accelerating—even among babies and toddlers. Contrary to popular opinion, all the information available to date indicates that a child less than 3 years old who is overweight is no more likely to be overweight as a young adult than is a toddler who is not overweight. However, the same research indicates that an overweight 3-year-old child is nearly 8 times as likely to become an overweight young adult as is a typically developing 3-year-old (Whitaker, Wright, Pepe, Seidel, & Dietz, 1997). In other words, by the time a child is 3, she may be on the path to obesity in adulthood. If we assume that the weight status of a 3-year-old has taken some time to develop, we must conclude that factors predisposing children to overweight begin operating in children in the first 3 years of life.

What factors in the experience of infants and toddlers seem likely to account for childhood overweight? What evidence do we have to suggest that these factors do, in fact, influence obesity risk? If research findings are scarce (or shaky), what advice about preventing obesity can prac-

tioners offer to parents and caregivers of babies and toddlers? What can we do at a public health and policy level to change our obesogenic (obesity-producing) environment? This article is an effort to answer these questions as fully as reliable research findings will allow. We will also

at a glance

- Rates of childhood obesity are increasing.
- Children less than 3 years old who are overweight are no more likely to be overweight in adulthood than are children who are not overweight, but 3-year-olds who are overweight are likely to be overweight in adulthood.
- Children learn many of their food preferences from their peers and from advertisements—not from their parents.
- Researchers have studied many possible factors in childhood obesity, such as genetics; the family's access to supermarkets and fresh, healthy foods; parents' attempts to limit when a child eats; and parents' attempts to make children eat more vegetables.

define some terms that are used in medical discussions about childhood obesity; attempt to dispel some common misunderstandings about the causes of childhood obesity; and suggest some promising approaches for practice, research, and policy.

Definitions and Data

What is obesity in early childhood? *Obesity* is a term for excessive body fat. We measure body fat in anyone older than 24 months by calculating body mass index (BMI; weight in kilograms divided by the square of height in meters). Clinicians can plot a child's BMI on gender-specific charts provided by the National Center for Health Statistics (NCHS) of the Centers for Disease Control (CDC) (<http://www.cdc.gov/growthcharts/>). There are no BMI-for-age references or consistent definitions for overweight for children younger than 2 years. However, nutrition programs such as the Special Supplemental Nutrition Program for Women, Infants and Children have used weight-for-length recommendations to determine overweight and thus program eligibility. Consequently, overweight in this age group is defined as at or above the 95th percentile of weight for length (Ogden, Flegal, Carroll, & Johnson, 2002). Thus, for the remainder of this discussion, we will use the term "overweight" to describe children aged 2 years to 18 years whose BMI falls at the 95th percentile or above.

Why does BMI mean something different for adults than for children? Adults have stopped growing. Because an adult's height remains the same, one can look at the weight and height of an adult and calculate BMI in a straightforward fashion. But think about children. Who appears to be naturally "chubbier"—a healthy 3-year-old or a 5-year-old? The 3-year-old—because she is still losing her "baby fat." All children are naturally at their "skinniest" when they are between 4 and 6 years old. Then their BMI slowly increases. Compare a 10-year-old girl about to enter puberty to a 5-year-old girl. The 10-year-old's BMI is higher, but that is as it should be, given her stage of development. In other words, different degrees of "adiposity" (fatness) are normal at different ages during childhood. Babies *should* be "fat"—but fat within the normal range on the NCHS weight-for-length charts. The 3-year-olds who are in the top 5% of the weight-for-length bell curve are much more likely to continue to be overweight into adulthood. And adults who are at the top end of the BMI bell curve are at increased risk for serious health problems.

Terminology aside, more of America's children are becoming overweight, and today's overweight children tend to be heavier than overweight children were in past years. These data are concerning for a number of reasons.

First of all, the obesity epidemic is accelerating—even among our youngest children. For example, between 1976 and 2000, the prevalence of overweight in 6- to 23-month-old children increased from 7% to nearly 12%. Most of this increase occurred from 1990 to 2000. Among 2- to 5-year-old children, the prevalence of overweight more than doubled (from 5% to more than 10%), again with most of the increase between 1990 and 2000 (Ogden et al., 2002).

Even among very young children, we are seeing significant—and growing—racial disparities in the prevalence of overweight. The greatest increases in the prevalence of overweight between 1971 and 1994 occurred in chil-

dren of black and Hispanic race/ethnicity (Ogden et al., 1997). Racial disparities with respect to overweight appear to grow and interact with socioeconomic status as children grow older. For example, in 1986, the prevalence of overweight among 12-year-old upper-income White girls and low-income African American and Hispanic boys of the same age was nearly identical—6.5%. By 1998, the prevalence of overweight in upper-income White girls was essentially unchanged at 8.7%, but had more than quadrupled among low-income African American and Hispanic boys, at 27.4% (Strauss & Pollack, 2001). Unfortunately, we do not yet understand the causes underlying these alarming racial and socioeconomic disparities in the prevalence of overweight among children.

Chubby Babies, Fat Adults?

As noted above, all of the information available to date indicates that a child who is overweight at less than 3 years of age is no more likely to be overweight as a young adult than is a child who is not overweight. However, a child who is overweight at 3 years or older is nearly 8 times as likely to be overweight as a young adult than is a 3-year-old who is not overweight (Whitaker et al., 1997). Why and how is overweight in early childhood tied to adult obesity? Not surprisingly, current hypotheses focus on genes and the environment.

Genetic factors that predispose to obesity in a family may already be expressing themselves in early childhood. Genetic factors related to obesity may include: metabolism rates, behavioral predispositions to food preferences, eating behavior, and patterns of physical activity. Even among children younger than 3 years, a child with one parent who is obese is 3 times as likely to become an obese adult as is a child with two parents of normal weight. A child with two obese parents is more than 13 times as likely to become an obese adult as is a child with parents of normal weight (Whitaker et al., 1997). This phenomenon undoubtedly reflects a complex interplay of biology and behavior. In

An overweight 3-year-old child is nearly 8 times as likely to become an overweight young adult as is a typically developing 3-year-old.

other words, as we have come to recognize that with respect to most aspects of child development, the old dichotomy of nature versus nurture represents an oversimplification of a complex issue.

We do know that the dramatic increase in the prevalence of overweight in the general population and among children since 1990 absolutely cannot be accounted for by genetic shifts in the population. Genetic changes simply do not occur this quickly. It is possible, however, that genetic predispositions toward certain behaviors (e.g., preferences for sweet or high-fat foods) vary within the population. When the environment changes, these genetic predispositions may be more apt to express themselves than formerly; the result is overweight or obesity. The overarching message? Our genes have not changed recently; our environment has. What does this conclusion tell us about the strong transmission of overweight risk from parent to child?

Parents' modeling of behavior and their shaping of a child's relationship to food have been areas of active research in child development for quite some time. Accounts in the lay press do not hesitate to hold parents responsible for childhood overweight. For example, recent articles in national newspapers have been headlined, "Overweight kids? You might deserve a big slice of the blame" (Lee, 2004), or "If parents can't say no, then their children won't learn to either" (Hart, 2003). Blaming parents for a problem that is growing more quickly—and at epidemic proportions—in disadvantaged minority populations than in the population as a whole immediately raises concerns about the validity of this conceptualization of the problem. If parents are generally and primarily to blame for the increased prevalence of child overweight since 1990, one or both of the following statements would have to be true: (a) Parenting practices as a whole have shifted dramatically in the last 15 years, and (b) low-income parents (especially mothers) have a reasonable chance of overcoming the influence of **both** food advertising that is targeted at their children and the economic conditions in which they live.

Who Influences Children's Eating Behavior?

If poor parenting is to blame for the growing prevalence of childhood obesity, then something must have changed since 1990 in the ways in which parents teach their children about food, set limits around food, and promote healthy eating habits. This assertion is difficult to support, for a variety of reasons. For example, if parents have a powerful influence over children's eating behavior and development of food preferences, then family members' food preferences should be very much alike. In fact, very little correlation exists between parent and child food preferences (even when the children have grown to be adults;

Rozin, 1991). Parents are not very effective at transmitting preferences for foods to their children (a finding that will not surprise any parent or caregiver who has struggled to encourage a child to sample a new food!).

Although parents have limited control over what children are willing to eat while sitting at the dinner table parents *do* control what food is in the cupboards. Given that obesity is more common in low-income minority popula-

tions, perhaps efforts should focus on encouraging low-income mothers with young children to stock the house with a range of healthy food options for their children. Unfortunately, this recommendation is problematic from a public

health perspective. Consider, for example, the research finding that families who live closer to supermarkets are more likely to consume a healthier diet than are families who live further away, presumably because those living closer have readier access to a range of fresh and healthy foods (Morland, Wing, & Roux, 2002). However, the number of supermarkets per capita is nearly 6 times greater in White neighborhoods than it is in neighborhoods of primarily minority race/ethnicity (Morland, Wing, Roux, & Poole, 2002). The reasons for these stark disparities are undoubtedly complex, and not fully understood. These differences, however, would potentially be amenable to public policy intervention.

Where *do* children learn their food preferences? The bulk of the evidence suggests that even children as young as 2 years learn food preferences from their peer group. In one study, researchers in a preschool setting seated children who didn't like broccoli next to children who did. The broccoli eaters ate their green vegetable in full view of their broccoli-averse classmates. Over time, the children who hadn't liked broccoli began to eat it (Birch, 1980). In a more recent experiment, teachers in a preschool setting and peer models were put head-to-head to determine who was more likely to influence a child's food preferences. The children were significantly more powerful influences than the adults were (Hendy & Raudenbush, 2000).

Evolutionary biology suggests two principal reasons why peers may be more powerful than adults in shaping children's food preferences:

- **Young children's reluctance to sample new foods is biologically wired.** Reluctance to try new foods begins to emerge at around age 2 years and lessens as children approach school age. The unfamiliar foods that children are most reluctant to try are vegetables (Cooke, Wardle, & Gibson, 2003). That children become reluctant to sample new foods just as they are becoming mobile, independent explorers seems to be more than mere coincidence. It would be to the human species' survival advantage for its young to be reluctant to eat unfamiliar

Today's overweight children tend to be heavier than overweight children were in past years.

plant life (e.g., vegetables): Plants can be poisonous. Instead of tasting any new item that they encounter, human children (in fact, nearly all mammals) determine what to eat by observing others around them.

- **Modeling eating behavior after peers may provide young children with some survival advantage.** A biological perspective suggests that the nutritional needs of the young human are more similar to those of other young humans than to those of full-grown adults. For example, because children's bodies are smaller than those of adults and to some extent less able to protect against infection, foods that adults can eat or drink safely in reasonable quantities could prove toxic to a young child (e.g., sushi, steak tartar, unpasteurized apple cider, and alcohol).

In brief, if nature had tried to equip children's brains with a preset system for recognizing which foods are safe to eat, a system that led children to imitate the behavior of the organisms most like themselves (i.e., other children), would clearly be the best design. This appears to be, indeed, the food-selection system that children use.

Unfortunately, advertisers seem to have recognized the power of peers to influence children's food preferences long before the rest of us. Anyone who has ever watched television recognizes that to sell food to children, advertisers use other children (e.g., "Mikey") or characters designed to appeal to and resonate with children. No cereal or candy company would ever attempt to sell a product to a child with a commercial featuring a firm (yet kind and gentle) adult model eating the product while enthusiastically explaining to the child how "yummy" it is. Paradoxically, this is exactly the method by which parents try to get children to eat healthy foods. Perhaps reframing our efforts at changing childhood eating behavior is in order.

Food advertisements on television are powerful. Children's consumption of specific foods correlates with their having viewed advertisements for these foods. Obese children are more likely than are children of normal weight to recognize food advertisements on television (Halford, Gillespie, Brown, Pontin, & Dovey, 2004). Even children as young as 2 years are more likely to select a food that they recently saw advertised in a 30-second commercial embedded in a cartoon than are children who have watched the cartoon without the commercial (Borzekowski & Robinson, 2001). Unless the government can be convinced to provide sufficient funding to advertise vegetables, whole grains, and milk on television with the same vigor and enormous advertising budget of the junk-food industry, hawking healthy food to children through television may be an unreachable goal. However, children who attend preschool and child care are exposed to peers in eating situations every day. These interactions may be prime opportunities for promoting the transmission of healthy food preferences between and among children.



PHOTO: MARILYN NOLT

What Is the Right Way to Parent to Prevent Obesity?

Parents do exert some control over how their children learn to prefer healthy foods and regulate food intake. Therefore, professionals who work with the parents of young children should base their recommendations about nutrition and feeding on solid scientific evidence. Unfortunately, although professionals frequently give families advice on these topics, we have little data to back up our suggestions.

For example, early childhood professionals and clinicians generally believe that young infants should be fed "on demand." (Whether or not parents actually accept and implement this advice is an unanswered question.) But although feeding an infant on demand may certainly promote a sense of security and help the infant to calm and self-regulate, we have no evidence to suggest that feeding a baby on demand has anything to do with her eventual ability to regulate appetite. Interestingly, at some point in the early childhood years, however, general professional opinion and advice seem to shift from feeding "on demand" to feeding at scheduled snack and mealtimes. We encourage parents to have a child wait until dinner for food, even if he or she is clearly hungry. The theory is that the child will then "have a good appetite" and will "eat a good dinner." On the other hand, some professionals advise parents to allow young children to "graze" on healthy foods all day long. They counsel parents to allow their child to eat a snack when they ask for one, with the thought that the child is learning to respond to his hunger cues accurately.

Feeding children when they say that they are hungry, these professionals and parents believe, will teach children that “we eat when we are hungry,” not that “we eat because it is dinnertime.”

Evidence to support either method of regulating food intake is scanty. Some data suggest that restricting children’s access to palatable foods makes children like and want these foods even more over time (Birch, Zimmerman, & Hind, 1980) and promotes overeating when the restricted foods are actually available (Fisher & Birch, 1999). The more that mothers control how much, what, and when children eat at age 5 years (regardless of the child’s weight status at that age), the more likely the child is to eat without being hungry (i.e., to be insensitive to hunger cues and therefore apt to overeat) by age 9 years (Birch, Fisher, & Davison, 2003). These data suggest that parents who set strict limits on their young children’s eating may actually promote obesity. This information might, therefore, prompt professionals to instruct mothers *not* to restrict the amount, timing, or content of children’s meals. However, such advice runs directly counter to how much of the general public views the cause of today’s childhood obesity epidemic—lax, inconsistent parenting with little limit-setting.

Similar confusion exists concerning strategies to get children to eat more vegetables. Simply encouraging parents to put vegetables on the dinner table each evening does not result in children’s becoming more familiar with a food and therefore more likely to eat it. Children must actually taste a vegetable repeatedly before they begin to like it (Birch, McPhee, Shoba, Pirok, & Steinberg, 1987). If simply prompting a child to “take one bite” could make a typical child easily and pleasantly take a bite of a disliked vegetable, parenting (and obesity prevention) would certainly be a much simpler endeavor than it is. Unfortunately, as we have seen, children have an inherent reluctance to sample new vegetables, and parental modeling, as described above, has limited power to overcome this reluctance. If these methods fail, parents often then resort to rewarding the child for trying one bite of the vegetable. Most commonly, parents will tell a child that she may not leave the table, or may not have dessert, or may not have any more servings of a preferred food until the target vegetable is sampled. Unfortunately, it seems that these methods of reward actually result in a *decreased* preference for the target vegetable over time—certainly not the desired outcome (Birch, Marlin, & Rotter, 1984).

Synthesis of the Research to Date

Do we have evidence that any feeding practices in the first few years of life influence obesity risk? It is relatively well-accepted among researchers that breast-feeding

reduces the risk of obesity (Hediger, Overpeck, Kuczmarski, & Ruan, 2001), although questions remain concerning whether this correlation is simply due to the presence of confounders, such as the general health-consciousness of mothers who breast-feed (Parsons, Power, & Manor, 2003). If one accepts that a relationship exists between breast-feeding and lowered risk of obesity, one should note that breast-feeding in infancy has *not* been

found to be associated with protection against overweight among children of preschool age in all populations. Among low-income children, for example, the relationship between breast-feeding and protection against overweight is present only in white children—not in black or Hispanic children

(Grummer-Strawn & Mei, 2004). The reason for this discrepancy remains unclear. Researchers are also debating whether or not the timing of a baby’s introduction to solid foods is associated with an increased risk of child overweight. Most recent research seems to indicate that introduction of solid foods before 4–6 months does not seem to be associated with infant weight status, at least at 12 months of age. We have no data about timing of solid food introduction and weight status at age 3 years or later. The use of food as a reward (for example, to avert a tantrum) has been associated with children’s increased preference for the food that has been used as a reward (Birch et al., 1980). However, the children of mothers who report that they use food as a reward do not seem, as a group, to be particularly obese (Baughcum et al., 2001).

Because of the high prevalence of obesity among children living in poverty, several researchers have studied the feeding practices of low-income mothers of young children. However, efforts to relate children’s weight status at 11 to 24 months of age to self-reported maternal feeding practices in low-income populations have not uncovered any clear associations. Baughcum and her colleagues (2001) found that low-income mothers of children who were overweight did not report being more concerned about their infant’s hunger, being less aware of their infant’s hunger and satiety cues, feeding their infant more on a schedule, being more likely to use food to calm their infant, or having less social interaction during feeding than did low-income mothers of children of normal weight. However, low-income obese mothers in this study were more likely to be concerned about their baby’s being underweight than other mothers. Given their concern, obese mothers may have been more apt to overfeed their babies, and thereby place them at greater risk for overweight. Regardless of the weight status of child or mother, low-income mothers are more likely to be concerned about their child’s hunger than are higher-income mothers (Baughcum et al., 2001). Low-income mothers said that they found it difficult to

Although parents have limited control over what children are willing to eat . . . parents *do* control what food is in the cupboards.

withhold food from a child who said he or she was hungry, even if the child had just finished a meal.

Results from the same authors for children 23 to 60 months of age provide equally confusing information for the practitioner who wants to provide straightforward advice to a family. The researchers found that obese mothers and low-income mothers were more likely to engage in what professionals consider age-inappropriate feeding practices than were non-obese or upper-income mothers (Baughcum et al., 2001). For example, low-income toddlers and preschoolers were more likely than upper-income young children to eat in front of the TV or walking around the living room rather than having a meal at a table with a place setting. Lower-income mothers said that they had less difficulty feeding their children than did higher-income mothers, but low-income mothers reported a tendency to push their children to eat more. However, none of these frowned-upon feeding practices were associated with increased risk of overweight at age 5 years.

In summary, we find no evidence from mothers' reports that overweight children experience a different feeding style from their mothers than do non-overweight children. Although lower-income mothers do feed their young children differently than do upper-income mothers, we have no evidence that these different feeding practices are actually related to an increased risk of child overweight. In other words, the fact that a low-income mother chooses to have unstructured mealtimes, encourages her child to eat more, allows her child to have a bottle during the day, or will feed the child herself if the child does not want to eat, may reflect sociocultural differences between lower-income and upper-income parents in their beliefs about feeding practices. Professionals have no basis on which to make a value judgment about these practices as they pertain to child overweight outcomes.

What Should Professionals Recommend to Parents?

We have reviewed the research on young children's eating behavior and parental feeding practices (with a particular focus on low-income minority children) and their relationship to childhood overweight. We have found an absence of robust research to guide us in advising parents about how to prevent childhood overweight. What advice *should* professionals give to parents of young children about feeding practices? Research suggests four guidelines for practice:

1. Acknowledge the limits of parental influence in the face of an obesigenic environment.

Especially when working with disadvantaged parents, acknowledge that although parents influence their chil-

dren's eating and will do the best job they can to prevent obesity in their child, individual parents are constantly battling a myriad of societal and biological influences on their child's eating behavior.

2. Empower parents to advocate for systemic change.

Parents are in a prime position to advocate for change in their children's child-care and preschool settings with regard to the foods served and the mealtime atmosphere.

Parents are also important voices in advocating for more and safer playgrounds in their neighborhoods so that children can get exercise outdoors.

3. Refrain from urging parents to change their feeding practices when we have little

scientific evidence to suggest that

these are actually "wrong."

Although allowing a child to walk around all day with a bottle of juice is certainly problematic from an oral health perspective, professionals tend to frown on other feeding practices without compelling evidence that these practices increase children's risk of poor health outcomes. For example, telling a mother to have structured mealtimes rather than allowing her young child to "graze" has little basis in science, and may only serve to alienate a mother from the health care provider. She is likely to be feeding her child as her mother fed her, and as her cultural and socioeconomic peers feed their children.

4. Advocate, advocate, advocate.

Although working with individual families to reduce their child's risk for overweight is important, advocating for change on a public health and policy level is critical. Providing low-income families in both urban and rural areas with ready access to fresh and palatable fruits and vegetables would be an important change for the better. Increasing the availability of healthy, tasty, and inexpensive fast food could also make a big difference in children's health. Although an upper-income working family can find palatable (albeit expensive) rather healthy take-out food in some communities, cost and availability preclude this option for most low-income families. Yet few low-income mothers have the time or energy after a long day at work to take public transportation (which doesn't exist in many communities) with several children in tow to buy fresh food at a supermarket (which may not exist in the vicinity of many low-income families' homes), and then cook while the children vie for her attention. Because many low-income families do not feel safe allowing their children to play outside in their home neighborhoods, it is important to ensure that, along with healthy meals and snacks, children get adequate opportunity for physical activity in child-care, preschool, school, and after-school programs. Of course our long-term goal should be safe child- and family-friendly communities with ample sources of afford-

Some data suggest that restricting children's access to palatable foods makes children like and want these foods even more over time.

able, healthy food to purchase and accessible resources for information and physical exercise (including community gardening).

In Conclusion

The early childhood professional can play a critical role in stemming the tide of childhood overweight. However, this role may not play out in the home of the individual family as much as it may in the Early Head Start or Head Start classroom or the community meeting hall. Preventing childhood overweight will, as the saying goes, take a village. 🍌

REFERENCES

- Baughcum, A., Powers, S., Johnson, S., Chamberlin, L., Deeks, C., Jain, A., et al. (2001). Maternal feeding practices and beliefs and their relationships to overweight in early childhood. *Journal of Developmental & Behavioral Pediatrics*, 22(6), 391–408.
- Birch, L. (1980). Effects of peer models' food choices and eating behaviors on preschoolers' food preferences. *Child Development*, 51, 489–496.
- Birch, L., Fisher, J., & Davison, K. (2003). Learning to overeat: Maternal use of restrictive feeding practices promotes girls' eating in the absence of hunger. *American Journal of Clinical Nutrition*, 78(2), 215–220.
- Birch, L., Marlin, D., & Rotter, J. (1984). Eating as the "means" activity in a contingency: Effects on young children's food preference. *Child Development*, 55, 432–439.
- Birch, L., McPhee, L., Shoba, B., Pirok, E., & Steinberg, L. (1987). What kind of exposure reduces children's food neophobia? *Appetite*, 3, 353–360.
- Birch, L., Zimmerman, S., & Hind, H. (1980). The influence of social-affective context on the formation of children's food preferences. *Child Development*, 51(3), 856–861.
- Borzekowski, D., & Robinson, T. (2001). The 30-second effect: An experiment revealing the impact of television commercials on food preferences of preschoolers. *Journal of the American Dietetic Association*, 101(1), 42–46.
- Cooke, L., Wardle, J., & Gibson, E. (2003). Relationship between parental report of food neophobia and everyday food consumption in 2–6-year-old children. *Appetite*, 41(2), 205–206.
- Fisher, J., & Birch, L. (1999). Restricting access to palatable foods affects children's behavioral response, food selection, and intake. *American Journal of Clinical Nutrition*, 69, 1264–1272.
- Grummer-Strawn, L., & Mei, Z. (2004). Does breastfeeding protect against pediatric overweight? Analysis of longitudinal data from the Centers for Disease Control and Prevention Nutrition Surveillance System. *Pediatrics*, 113(2), e81–e86.
- Halford, J., Gillespie, J., Brown, V., Pontin, E., & Dovey, T. (2004). Effect of television advertisements for foods on consumption in children. *Appetite*, 42(2), 221–225.
- Hart, B. (2003, November 16). If parents can't say no, then their children won't learn to either. *Chicago Sun-Times*, p. 36.
- Hediger, M., Overpeck, M., Kuczmarski, R., & Ruan, W. (2001). Association between infant breastfeeding and overweight in young children. *Journal of the American Medical Association*, 285, 2453–2460.
- Hendy, H., & Raudenbush, B. (2000). Effectiveness of teacher modeling to encourage food acceptance in preschool children. *Appetite*, 34, 61–76.
- Lee, E. (2004, May 30). Overweight kids? You might deserve a big slice of the blame. *Atlanta Journal-Constitution*, p. 1A.
- Morland, K., Wing, S., & Roux, A. D. (2002). The contextual effect of the local food environment on residents' diets: The atherosclerosis risk in communities study. *American Journal of Public Health*, 92(11), 1761–1768.
- Morland, K., Wing, S., Roux, A. D., & Poole, C. (2002). Neighborhood characteristics associated with the location of food stores and food service places. *American Journal of Preventive Medicine*, 22, 23–29.
- Ogden, C., Flegal, K., Carroll, M., & Johnson, C. (2002). Prevalence and trends in overweight among US children and adolescents, 1999–2000. *Journal of the American Medical Association*, 288, 1728–1732.
- Ogden, C., Troiano, R., Briefel, R., Kuczmarski, R., Flegal, K., & Johnson, C. (1997). Prevalence of overweight among preschool children in the United States, 1971 through 1994. *Pediatrics*, 99(4), e1.
- Parsons, T., Power, C., & Manor, O. (2003). Infant feeding and obesity through the lifecourse. *Archives of Disease in Childhood*, 88(9), 793–794.
- Rozin, P. (1991). Family resemblance in food and other domains: The family paradox and the role of parental congruence. *Appetite*, 16, 93–102.
- Strauss, R., & Pollack, H. (2001). Epidemic increase in childhood overweight. *Journal of the American Medical Association*, 286(22), 2845–2848.
- Whitaker, R., Wright, J., Pepe, M., Seidel, K., & Dietz, W. (1997). Predicting obesity in young adulthood from childhood and parental obesity. *New England Journal of Medicine*, 337, 869–873.