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## Childhood Obesity: The Role of the Mental Health Professional

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# Childhood Obesity: The Role of the Mental Health Professional

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### Faculty

**Barry Panzer, PhD, ACSW**, is a practitioner with more than 35 years of clinical experience with children, teens, adults, and families. Dr. Panzer is currently the co-director of Brooklyn Child and Adolescent Weight Specialists, the only multidisciplinary private practice for obese youths in New York City. In addition, he is an Assistant Professor in the Departments of Pediatrics and Psychiatry and Behavioral Sciences at New York Medical College. Dr. Panzer was selected as one of two mental health question writers on the American Board of Obesity Medicine committee for the board certification exam.

Dr. Panzer received a PhD with Distinction in social work from Columbia University and has served as a clinical instructor at Downstate Medical Center (at State University of New York) and adjunct professor at Columbia University. His post-graduate training includes family therapy, cognitive-behavior therapy, and child and adolescent nutrition. He has published in the areas of sudden infant death syndrome, crisis intervention, and ADHD. Dr. Panzer's interest in childhood obesity dates to 2003 and since then he has published articles in the *American Journal of Orthopsychiatry*, *ICAN: Infant, Child, and Adolescent Nutrition*, and *ADHD Report*. He has also made presentations at major conferences, including for

the American Academy of Pediatrics, the American Psychological Association, and the National Association of Social Workers. Dr. Panzer is passionate about educating and motivating colleagues to become involved in caring for families of obese youth.

### Faculty Disclosure

Contributing faculty, Barry Panzer, PhD, ACSW, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

### Division Planner

Alice Yick Flanagan, PhD, MSW

### Division Planner Disclosure

The division planner has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

### Audience

This course is designed for mental health professionals, including social workers, counselors, and therapists, who are currently treating overweight or obese children and adolescents and their parents.

### Accreditations & Approvals

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This course is considered self-study by the New York State Board of Marriage and Family Therapy.

### **Designations of Credit**

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NetCE designates this continuing education activity for 2 NBCC clock hours.

### **Individual State Behavioral Health Approvals**

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### **Disclosure Statement**

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### **Course Objective**

The purpose of this course is to provide mental health professionals with the skills and motivation necessary to contribute to resolving the obesity epidemic.

### **Learning Objectives**

Upon completion of this course, you should be able to:

1. Outline the epidemiology and consequences of childhood overweight and obesity.
2. Distinguish various obesity trajectories and their differential diagnostic and treatment issues.
3. Evaluate salient factors when assessing the overweight or obese child, including components of the interview process.
4. Recommend interventions based on the category of childhood overweight/obesity.
5. Describe importance of collaborating with the multidisciplinary team when caring for the overweight or obese child.



Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the course material for better application to your daily practice.

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## INTRODUCTION

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For nearly two decades, childhood obesity has been labeled a global pandemic among the world's industrialized nations [1]. In the United States, with an estimated 17.2% of children and adolescents 2 to 19 years of age classified as obese and another 16.2% as overweight, the Surgeon General has described the problem as the greatest threat to public health today [2; 3].

This course will provide an overview of the nature of this disorder, as well as practice concepts and principles to guide mental health professionals in helping these children and their families. It should be noted that, given the importance of early intervention, the course material addresses pre-pubertal children unless otherwise specified [4]. In addition, while overweight and obese are distinct clinical entities, comments regarding obesity, excess weight, or weight disorder will generally be inclusive of overweight. A resources section at the end of the course lists useful websites and materials.

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## EPIDEMIC

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In the last decade, experts have warned that, due to the obesity epidemic, we may be witnessing the first generation of Americans with a shorter lifespan than their predecessors [5]. The numbers, somewhat familiar by now, remain startling. The prevalence of pediatric overweight and obesity in the United States has more than quadrupled, a 700% increase, over the past 40 years, affecting both sexes and children of all ages [6]. The impact is even more damaging among low-income families and Mexican American, Native American, and African American children [7].

The statistics become more ominous when manifest in our daily experiences. For example, a 2006 study by the Center for Injury Research and Policy found that more than 250,000 U.S. children 1 to 6 years of age were too overweight to fit into standard car seats [8]. Another 2010 paper issued by the National Bureau of Economic Research titled *Unfit for Service* indicates that one in every four applicants to the armed services is rejected due to overweight or obesity [9]. Military leaders label this a threat to national security. Finally, it has been estimated that one-third of all white children and half of all minority children born in 2000 will develop type 2 diabetes in their lifetime [10]. Unchecked, the childhood obesity epidemic will dramatically alter our way of life.

How did we get to this point? Scientists have suggested that despite the importance of biologic factors in the development of obesity, the epidemic is due primarily to environmental factors [11]. The energy imbalance that defines obesity is fueled by the intersection of several societal factors, most notably the toxic food environment [12]. This concept refers to both the unhealthy quality and oversized portions of the food we eat and to the ubiquitous availability of eating opportunities in a society blanketed by fast food outlets and stacked with vending machines. The use of high-fructose corn syrup has increased more than 1,000% in the past 30 years and is now a staple in almost every soft drink and snack food [13]. It surprises no one that the rates of cardiovascular and metabolic illnesses have reached all-time highs.

During this same four decades, there has been an unprecedented expansion in the electronic entertainment industry [14]. The staggering array of cable and satellite television channels, the addictive nature of video game systems, and the ubiquitous personal computer and Internet all contribute to the proliferation of sedentary activities, often accompanied by high-calorie snacking. The consequence of this limited energy expenditure is further compounded by the overall decline in sports and recreational activity both in and out of school [15].

The response to this epidemic draws on traditional public health strategies and has emphasized to a great extent preventing the development of the condition, with much less effort devoted to designing effective treatments [11]. This is in part due to continued professional reliance on a frequently ineffective prescriptive model of intervention. Most overweight children will simply be unable to adhere for any extended period to a 1,500-calorie diet and admonitions to limit soft drinks, candy, and video games.

Yet, there are established treatment approaches consisting of family-based cognitive-behavior therapy combined with diet and exercise that have demonstrated both short- and long-term benefits [16]. This course draws on this research as well as the practice wisdom that the field of mental health has developed in its long experience with children and families.

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## AN OVERVIEW OF CHILDHOOD OBESITY

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### DEFINITION

The definition of childhood obesity involves biologic and cultural dimensions, both of which are important for effective assessment and intervention. Despite the lack of consensus regarding the physiologic parameters of overweight and obesity in children, there is widespread reliance on the body mass index (BMI) as a measure of weight in relation to height [7]. BMI is easily calculated on color-coded growth charts or more conveniently via wheel calculators [17; 18; 19]. The American Medical Association's (AMA's) Expert Committee on Child and Adolescent Obesity classifies BMIs in the 85th to 94th percentile as overweight, and those at or above the 95th percentile as obese [7]. Apart from research-related distinctions and program planning, the clinical significance of the two levels of excess weight is that, in childhood, increasing degrees of obesity are more socially stigmatizing, more athletically compromising, and more resistant to lifestyle modification inter-

ventions. (For adults, the distinction involves increased risk for weight-related health and mental health problems and, of course, aesthetics.)

Obesity has also been defined as a culture-bound phenomenon, with ethnic and class variations regarding desirable body image and standards of attractiveness [20; 21]. In some cultures, overweight women are considered more appealing and obesity in children is not recognized as problematic unless the child is victimized by peers or unable to participate recreationally. This greater acceptance of excess weight within the culture can reduce the negative psychosocial consequences associated with weight bias, but unfortunately may also delay the treatment of emerging health problems. Practitioners should embrace these non-quantified definitions of obesity as equally valid and central to the clinical process. Finally, an adjunct to all definitions of obesity is the concept of energy imbalance reflecting the greater intake than expenditure of calories [22; 23].

### EPIDEMIOLOGY

#### Prevalence

The prevalence of obesity among children 2 to 5 years of age showed a slight absolute decrease from 13.9% in 2003–2004 to 9.4% in 2013–2014, though researchers remain uncertain as to whether this represents a true downward trend or a non-conclusive fluctuation [24]. Among those 6 to 11 years of age, 17.4% were categorized as obese [24]. During 2013–2014, obesity prevalence was higher among Hispanic (21.9%) and non-Hispanic black youth (19.5%) than non-Hispanic white youth (14.7%) [24; 25]. Based on data from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) about the prevalence of childhood obesity in low-income families, 14.5% of WIC participants 2 to 4 years of age were obese in 2014 [25]. In the period of 1999–2010, obesity prevalence among children whose adult head of household had completed college was 9%, compared with 19% for children whose adult head of household had not completed high school [26].

Among non-Hispanic white children, the lowest prevalence of obesity was observed among those whose adult head of household completed college; however, this was not the case for non-Hispanic black children [26].

### **Persistence**

Three factors appear to be predictive of obesity becoming a lifelong condition: early onset, chronicity, and genetic loading [27]. An estimated 80% of children with two overweight parents will be obese; this number is decreased to 40% if only one parent is obese [28]. Among obese toddlers, 93% of boys and 73% of girls were still obese as adults, and obese teens are almost 18 times more likely to become obese adults than their normal-weight peers [29]. Research has suggested that the persistence of obesity in childhood follows several trajectories: chronic (since infancy), transient (spontaneous onset and remission), and adolescent-onset [30].

### **CONSEQUENCES**

Childhood obesity has been termed an accelerator of adult diseases and is associated with several cardiovascular risk factors, metabolic syndrome (a prelude to type 2 diabetes), fatty liver disease, sleep apnea, asthma, and a range of other health problems [22]. However, the most immediate and common consequences of obesity among children are psychosocial, hence the vital role of mental health professionals in responding to the epidemic [31; 32]. Childhood obesity, compounded by social and familial weight bias, has been associated with diminished quality of life, societal victimization and peer teasing, low self-esteem, and specific psychiatric diagnoses [30; 33; 34; 35]. Factors associated with a greater risk of these comorbidities include: female sex, minority status, severity of obesity, the child's lack of compensatory or bias-protective mechanisms, and negative family responses [36].

### **ETIOLOGIES**

Obesity is a multidetermined disorder, and etiologic theories involve biologic, psychologic, familial, and societal factors [37]. Biologically, the storage of adipose tissue, the regulation of appetite and satiety, metabolic rates of burning calories, and capacity for physical activity are all genetically loaded [14]. Other physiologic mechanisms include early and excessive fat cell formulation and set point theory [27; 38].

Psychologically, the concept of "emotional eating" posits that food is used (by both parents and children) to regulate dysphoric emotions and misbehavior [39]. Compulsive and impulsive personality traits, often components of psychiatric conditions, can also contribute to excessive caloric intake [40]. These individual factors may be manifested in problematic eating behaviors such as too frequent meals and snacks, a preference for calorie-dense menus, and excessive portion sizes.

Cultural factors and variations are the least researched issues regarding childhood obesity [41]. For effective intervention, a better understanding of the role of typical cuisine in various ethnic and cultural groups is necessary. Minority and poor children, for example, have less access to healthy nutrition and safe neighborhood recreation, concerns that can directly influence the energy balance [26]. In addition, the perception of obesity and its attribution also varies among cultural groups, a factor that can be critical regarding help-seeking and early intervention with these populations.

Biologic, psychosocial, and cultural aspects converge in the concept of the obesogenic family, which transmits to children both the genetic component for excess weight as well as faulty eating and exercise patterns [42]. Four family processes have been identified as increasing the risk of obesity in children. These are [43; 44; 45]:

- Parental deficiencies in knowledge about nutrition and fitness
- Faulty parental modeling regarding healthy eating and exercise

- Authoritarian, neglectful, and unstable parenting styles
- Parental psychopathology, especially a history of past or present eating disorders, depression, and/or attention deficit hyperactivity disorder (ADHD)

Clinicians should be familiar with the range of etiologies to clarify for families the most salient sources of their child's obesity and to better select targets for intervention.

## **TRAJECTORIES**

As with any clinical entity, it is important to recognize subtypes and variations in childhood obesity, as this influences differential assessment and intervention.

### **Chronic**

One major child health epidemiologic survey observed that nearly 15% of the survey population had never had a normal BMI [30]. Evident even in infancy, the excess adiposity is strongly related to parental genetics. These infants and toddlers may have intense appetite demands, and their parents, many with their own weight problems, may respond with faulty feeding and nutritional practices. As noted, the interplay between heredity and environment defines the obesogenic family and early-onset childhood obesity is predictive of continuing excess weight through later childhood, adolescence, and adulthood. The chronicity is also associated with a more severe degree of obesity, which in turn is related to higher rates of medical, psychologic, and social consequences.

### **Transient**

Approximately 5% of children acquire excess weight in middle childhood (ages 9 to 12 years), which for many appears to resolve spontaneously and without professional intervention [30]. The explanation for this phenomenon may lie in the increased autonomy of this age group, which results

in more unsupervised eating and near-constant sedentary activities (e.g., watching television, video gaming). Until additional research clarifies which of these children is likely to remain overweight or obese, clinicians should assess biologic and psychosocial risk factors and intervene accordingly.

## **Dual Diagnosis**

While adult obesity is associated with more than two dozen diseases, overweight and obese children suffer mainly from negative emotional and social difficulties [31; 46; 47; 48; 49]. In some instances, the psychosocial distress is a consequence of the child's obesity, usually mediated by some degree of peer or family weight bias. These dual-diagnosis children have been characterized in the research and clinical literature as having consequent low self-esteem, diminished quality of life, or actual psychiatric disorders [30; 33; 35]. For other children, the comorbid problem can include any psychiatric or developmental condition or family stressor or dysfunction that interacts with the weight issue and requires clinical attention [50]. Practitioners should explore dynamic mechanisms that might link the two conditions, thereby providing targets for intervention with potential serendipitous value. An example of this would be the clinical focus on poor self-regulation in an obese child with ADHD. Executive functions deficits like impulsivity compromise academic and social behavior as well as the ability to limit caloric intake or to maintain a weight-reduction effort [40; 51].

It is worth noting that because a comorbid psychiatric problem may exclude these children from empirical studies and obesity clinic services, it is difficult to determine the actual prevalence of dual-diagnosis obese children. If, in fact, the size of this subgroup has been underestimated in research and practice, it might explain the limited success of standard prescriptive methods as well as the necessity of involving mental health professionals in childhood obesity treatment.

### **Well-Functioning**

Another subgroup of obese children whose prevalence is undetermined is those who appear unaffected by weight bias or the limitations associated with excess weight. The family or cultural environment may buffer these children from societal weight prejudices or the child may possess admired talents or desirable personality traits that promote popularity and a positive self-image [52; 53]. Researching these protective and adaptive factors can provide important therapeutic strategies for helping children and families cope with the stigma of excess weight.

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## **CLINICAL PROCESS**

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### **ASSESSMENT**

#### **Primary Tasks**

As in all assessments, when caring for the obese child, the practitioner's primary tasks are to engage the family in the evaluation process and to acquire sufficient information for a diagnostic formulation and treatment planning [54; 55].

Who to engage initially is a decision dependent on the clinician's orientation and the age of the patient. Using a family behavior modification model, the provider would conduct the intake interview with the parent(s) or caretaker(s) without the pre-pubertal child for several reasons. First, most pre-teens are dependent on their adult caregivers for menu planning. Second, there is evidence that child obesity treatment can be successful with parent counseling alone [56; 57]. Third, a behavioral assessment is relatively structured and detailed, and collecting a significant amount of data is more easily accomplished in an adult-only interview. Fourth, the conjoint interview more comfortably allows for discussion of parental emotional distress regarding the child's obesity and the need to seek professional help. In this regard, early family theorists recognized that building alliances

and "joining" are fostered by trying to relieve the parents' anxiety, guilt, and shame, efforts that convey the practitioner's nonjudgmental acceptance and support [58; 59]. Finally, when family stressors such as individual psychopathology or marital conflict are issues, these are obviously more appropriately reviewed with the parents alone. (When the patient is an adolescent, the initial session can include him/her, saving a few minutes at the end to connect with the teen alone.)

The preference for a behavioral paradigm is not intended to minimize the value of systems concepts in understanding family structure and function in relation to the child's obesity. In our later discussion of the oppositional obese child, for example, the triangulation of the child's excess weight as a homeostatic mechanism will be considered [60]. Nonetheless, there is only limited exploration in the literature of obesity as a systems disorder and little evidence that traditional family therapy has been studied in treating obese children [61; 62; 63; 64; 65].

Engaging the parents may also involve encountering various forms of resistance, which itself can provide additional diagnostic information about the family. Last minute cancellations, an absent parent, blaming self or each other, or denying the problem and its significance reflect a variety of motivational obstacles and, from a systems perspective, may indicate the family's protective stance and reluctance to change [66]. Practitioners should demonstrate both competence and genuine concern and should certainly be mindful of not using pejorative terms regarding excess weight. Respect for and sensitivity toward the family's cultural and ethnic values is also critical. However, if parents continue to deny the current or future seriousness of the child's obesity and relevant information has been provided in discussion and print, the family's boundaries should be respected without further challenge or disapproval, thereby allowing for future consultations.

The second primary task of the assessment is gathering and organizing enough information about the child and family to develop goals and a plan of intervention. Data collection requires balancing the extra time needed for additional interviews, diagnostic measures, and collateral consultations (especially with dual-diagnosis children) with the family's impatience to begin treatment. The deliberate pace can be therapeutic, however, insofar as the assessment process conveys the importance of careful analysis and planning in problem solving.

### Pre-Interview Correspondence

One practical method of engaging the family to increase their motivation and commitment is to forward several diagnostic forms and checklists prior to the first interview. This initial correspondence can serve several purposes. Given the large amount of information needed for a comprehensive assessment, the materials sent to the parents can both verify and supplement interview data. The mailing conveys the expectation that parents will be active in the clinical process, a dynamic that will be extended in the monitoring of dietary and exercise behavior and other intervention tasks. The correspondence also signals the mutuality and shared responsibility of the clinician and family, with the expectation that the parental effort will be matched by the practitioner's diligence in reviewing all completed forms.

The materials forwarded should address four basic types of information [68; 69; 70; 71; 72; 73]:

- A child and family background form, common to many intake procedures, that includes identifying data; obstetrical, developmental, and temperament histories; current biopsychosocial functioning; and family stressors
- A screening device for a broad-based quantification of behavioral difficulties
- A questionnaire to survey the child's eating behavior
- A three-day food record

This selection of instruments signals to the parents to consider connections between the child's development, current functioning, family interaction, and excess weight. Clinicians may also wish to include a brief handout regarding excess weight among youths that is both informative and reinforces the family's decision to address a significant problem.



The Registered Nurses' Association of Ontario recommends assessing the family environment for factors (e.g., parenting/primary caregiver influences and sociocultural factors) that may increase children's risk of obesity.

(<https://www.guideline.gov/summaries/summary/49132>. Last accessed October 25, 2017.)

**Level of Evidence:** IV (Evidence obtained from expert committee reports, opinions, and/or clinical experiences of respected authorities)

### Initial Interview

A good starting point for the initial parental session is to reduce anxiety and increase cooperation by clarifying the evaluation process itself. Accumulating salient information begins with reviewing the diagnostic material previously mailed to the family, which not only rewards and respects the parents' effort but can help highlight areas requiring more elaboration. The standard interview strategy of proposing open-ended questions (e.g., "What is concerning you about your child's weight?") followed by specific probes can be useful in exploring cultural, familial, and individual aspects of eating behavior and clarifying the onset and contributing and maintaining factors in the child's obesity. Practitioners should assess the medical and psychosocial consequences as well as previous attempts to remedy the problem.

Parents should be asked to note their primary concern(s) and to mention additional issues to be discussed. This enables the clinician to “start where the family is” and to allocate time in the session to cover all areas. Regarding the child’s weight, it is important to determine the meaning attached to this problem and to clarify family eating patterns and attitudes toward obesity. Weight bias in family members, relatives, and peers is a particularly potent source of distress to the child [74]. The amount and type of physical activity for the child is another vital area, as is the time spent watching television, playing video games, or using the computer.

Practitioners should screen for psychiatric disorders, academic problems, peer rejection, and family, situational, and developmental crises. The flow and content of the interview will also provide opportunities to observe family systems properties, such as structure, roles, boundaries, communication patterns, problem-solving style, and available resources [58]. The concluding activities of the initial session provide supplementary data for the assessment via referrals for specific consultations and requests for additional structured measures. These consultations may include examination by the child’s pediatrician (including laboratory testing for weight-related issues and referral to medical subspecialties) and referrals for psychoeducational testing and/or speech and language assessment. The additional diagnostic forms and questionnaires for parents may focus on dietary and exercise behaviors and specific psychiatric disorders [75; 76; 77; 78; 79]. If the child is experiencing academic problems, teacher-completed rating forms can help clarify the deficits [80]. At the end of the session, the clinician can inquire regarding the parents’ current anxiety level in comparison to the beginning of the visit as well as any disappointment or distress experienced during the session.

### **Child Interview(s)**

Effective practice with children requires that the choices of interview activities (e.g., talking vs. playing) and structured measures be consistent with the child’s age and presenting problems [81]. The interview(s) with the child can include a variety of age-appropriate structured measures to assess general functioning, self-esteem, body image, and specific disorders such as depression and anxiety [82; 83; 84; 85; 86; 87; 88]. When there is a clear or suspected comorbid psychosocial disorder, the clinician will need to allocate additional diagnostic time and materials to achieve an understanding of both conditions. Enabling the obese child to feel comfortable, a universal task of all professional helping, begins with clarifying his or her understanding of the nature of the practitioner and the process of the evaluation. Notably, because the child may associate the visit with a medical examination, it is important to draw the distinction and to assure the child of no injections, undressing, or touching.

The two primary areas for exploration are the child’s obesity and current psychosocial functioning. If the discussion has already included mention of the weight problem, the mental health professional should proceed to elicit the child’s thoughts and feelings about his or her body, perceived consequences (e.g., athletics, clothing) and experiences (including familial) with weight bias. This is also the point to quantify time spent in active vs. sedentary (electronic) entertainment, inquiring as to whether the latter is a source of conflict with parents.

Many preadolescent obese children will not be able to provide specific reasons for wanting to lose weight, though older girls may express distress regarding body contour and fashion problems and athletic youth may complain about impaired performance. The motivation to lose weight for the majority of obese boys and girls is more likely the need to escape the teasing and rejection associated with weight bias [89].

Although the effectiveness of family-based behavior modification depends largely on parental motivation and ability, it is still important to assess the child's capacity for change. The key elements here are the degree of impulse control and the ability to follow plans. The clinician should be familiar with the developmental levels of these executive functions and should assess whether deficits in those areas (e.g., ADHD) compromise the child's ability to achieve behavioral changes. A useful strategy involves helping the child to recognize his or her capacity for change by locating previous success in learning new nonacademic or developing adaptive habits (e.g., video game/sports skills) or suppressing dysfunctional reactions (e.g., early childhood phobias). Practitioners with play therapy skills can supplement the interview process with diagnostic play activities, such as puppets, figures, and drawings. Important themes to elicit include body image, self-control, conflict with parents, and rejection by peers.

Clinicians should be aware that the critical need to establish positive rapport with the child in all therapeutic work is even more important with the obese child. These children may have already experienced the real or perceived insensitivity or disdain of various adults (e.g., parent, relative, teacher, coach, pediatrician) and will be fearful of similar mistreatment [74; 90]. Moreover, because the parents will implement unwelcome behavioral restrictions regarding diet and electronic activities, the child's emotional connection to the counselor can facilitate his or her cooperation.

### **Informing Interview**

The informing interview with the parents is the pivotal session, linking the diagnostic and treatment processes. It is essential that all sources of information—interviews, structured measures, collateral reports, and consultations with other professionals—be coordinated and reviewed prior to meeting with the parents. The data should be analyzed to provide a clear and comprehensive formulation regarding the causative and maintaining factors in the child's obesity and any comorbid

psychosocial disorders. Apparent or presumed connections between the two conditions, as well as the role of family dynamics in either issue, should also be presented to the parents. Familiarity with theories of obesity and weight-loss methods is essential for practitioners, as parents will often have questions about their child's weight disorder, popular diets, supplements, and exercise activities during this interview. As such, this can be an important opportunity for the mental health provider to demonstrate competence and thereby increase the family's trust in the consultation.

The next task of the session is to preview recommended treatment strategies prior to setting short- and long-term goals. This enables parents to gauge the effort needed to help their child and to more confidently commit to the treatment program. There are several formulas for assessing motivation and readiness for change, generally derived from clinical work with addictive disorders [91; 92; 93]. Determining the parent's level of motivation can yield more realistic expectations as well as highlight potential resistances.

### **Typology**

As part of the diagnostic formulation, practitioners may find it helpful to categorize overweight and obese children using a two-dimensional typology based on degree of excess weight and the presence of medical, psychosocial, or family comorbidities.

Although overweight (i.e., a BMI in the 85th to 94th percentile) is sometimes labeled as "at risk for obesity," it is better understood as its own clinical entity, with differing etiologies and trajectories, lesser consequences, and overall better prognosis. In contrast, obesity (i.e., BMI at or above the 95th percentile) is clearly more damaging and compromising, with numerous and potentially severe consequences that can reach life-threatening proportions. The AMA Expert Committee on Child and Adolescent obesity differentiates these weight categories via separate clinical processes regarding the setting of goals and the methods of treatment [2; 6].

The second dimension involves the presence or absence of any co-occurring health or mental health conditions. Both the treatment objectives and the range of interventions will depend on the nature, number, and severity of these comorbidities. The two dimensions can yield a matrix of four clinical profiles [94]:

- Type 1: Overweight with no complications
- Type 2: Overweight with any single feature or combination of the following:
  - Medical problems
  - Psychosocial, developmental, or academic problems
  - Individual, parental, or marital problems
  - Family stressors
- Type 3: Obese with no complications
- Type 4: Obese with any single feature or combination of the following:
  - Medical problems
  - Psychosocial, developmental, or academic problems
  - Individual, parental, or marital problems
  - Family stressors

The four categories are not only useful clinically but can also guide program development and assessment and research efforts.

## GOAL SETTING

Often neglected in clinical practice, establishing goals of intervention in collaboration with the family is crucial to both measuring success and fostering important treatment processes [95]. While the actual treatment goals will vary with each typologic profile, there are general principles that guide the overall process [94]. It should be noted that in instances in which the data collection has been insufficient, the preliminary goal will involve extending the diagnostic process to achieve a more complete case formulation. This may not be prudent when there is a crisis or urgent situation or when delaying any intervention risks the family's discontinuing contact.

The approach to setting outcome goals optimally involves collaboration between the counselor, parents, and child (if chronologically appropriate). This not only improves family communication and problem solving but also enhances parent-child motivation while reducing oppositional interaction [96]. Decisions may focus on prioritizing objectives and determining whether goals will be addressed concurrently or sequentially. The practitioner may rely on established methodologies, such as behavioral contracting or goal attainment scaling, or draw on their own clinical orientation and style [97; 98]. All goals, however, should be documented to facilitate accountability and to reduce misunderstanding.

Devoting a separate session to goal setting indicates to the family that achieving weight loss and stabilization, especially when coupled with a psychosocial or family problem, requires planning and cooperation. This approach counters the impatience and impulsivity that accompanies many weight loss attempts and models for parents the necessity of accountability in any behavior modification effort.

One universal goal for children with any degree of excess weight is to develop patterns of healthy nutrition and physical fitness. There are useful guidelines in both areas developed by the U.S. Department of Agriculture's (USDA's) ChooseMyPlate and the American Academy of Pediatrics [99; 100]. Because sustained weight loss may not be achievable for some children despite repeat efforts, achieving good dietary and exercise habits remains an important therapeutic goal. For such children, it is also helpful to distinguish between goals that require actual weight loss (e.g., reduced clothing size) from those that do not (e.g., improved self-esteem). There is general consensus that targeting a specific weight goal should be avoided, with emphasis instead on achieving better overall health and functioning and a concomitant lower BMI [7]. The traditional therapy goals for mental health problems accompanying overweight are to reduce distress and dysfunction and to improve adaptive behavior and coping skills.

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## TREATMENT

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The dimensions of childhood obesity treatment are its components and parameters, which will be discussed according to the typology profiles. First, an overview of data regarding the reported effectiveness of treatment for obese children can provide important background.

The research literature indicates that many weight-reduction approaches with children are beneficial on a short-term basis, with positive outcomes observed one year post-treatment [101]. Whether the weight loss could be maintained over a longer period and what level of intervention would be needed to achieve this are undetermined, though one seminal paper documented sustained improvement 10 years after treatment, and a follow-up found that these results were replicated over a 25-year period [102; 103]. In general, these findings can be interpreted to parents as validating a variety of methods and techniques and should also challenge clinicians to extend these results. Unfortunately, there are still no consensus findings regarding the best strategies for achieving long-term weight control or for preventing relapse [104]. The other significant deficiency in childhood obesity treatment is the lack of guidelines regarding cultural variations [105]. It is increasingly clear, however, that until policymakers fully embrace a chronic disease model in treating obesity, which endorses decades or even lifelong intervention, treatment effectiveness will remain compromised. Practitioners should endeavor to understand ethnic, social, and religious factors shaping the family's eating behavior during the evaluation and goal-setting phases and to flexibly incorporate these in the treatment effort.

## TYPE 1: OVERWEIGHT WITHOUT COMORBIDITIES

### Goals

As established by the AMA Expert Committee on Child and Adolescent Obesity, the goal of intervention for these children is to prevent further weight gain, assuming the child's linear growth will result in a normal range BMI [7]. That dietary adjustments and physical activity can affect weight and body contour is an empowering experience for children and may serve as a blueprint for self-regulating activities throughout life.

### Components

The clinical assumption is that providing overweight children and their parents with information regarding healthy nutrition and fitness will enable the child to achieve the stated goals. Intervention is primarily educational with supportive counseling. The range of formats includes structured classes for parents and children (separately or combined), specialized groups, family or parental sessions, or individual discussions with the child. The choice of format will depend on the location of service. Classes and large groups are more logistically suited to clinics and facilities, and family and child sessions are more convenient in office-based practices. In addition to the general educational process, families may benefit from a written, personalized diet and activity plan supplemented by behavior modification methods.

### Parameters

As noted, there is no consensus regarding the parameters of treatment for overweight children, but common practice finds that many of the educational curricula include the following topics:

- Hunger and satiation
- Healthy nutrition and age-specific calorie needs
- Interpreting food labels
- Portion sizes
- Misuse of food as a reward
- Emotional eating

- Physical activities and exercise
- Reducing sedentary electronic entertainment

Various programs provide this information in the forms of lectures, media presentations, and written materials, spanning 10 to 12 weekly sessions [75; 106; 107]. In addition to this educational process, some families may require a more personalized diet and activity plan and behavioral techniques for implementation.

Optimal follow-up upon completion of the intervention has not been determined, but practice wisdom suggests that monthly sessions, emails, or phone calls may suffice for checking progress. With the achievement of a normal range BMI, contact is as needed.

## **TYPE 2: OVERWEIGHT WITH COMORBIDITIES**

### **Goals**

While the goals for the child's excess weight are identical to type 1 profiles, the addition of one or more concurrent problems broadens the treatment objectives. For a comorbid medical problem, the intermediate goal is establishing or maintaining communication with the child's physician. If the condition is a consequence of the child's excess weight (e.g., sleep apnea), the longer-term goal will be the reduction or elimination of the health issue via achieving a normal range BMI or medical intervention.

When a psychosocial or family problem accompanies the child's overweight, the goals will be more extensive and complex. The diagnostic evaluation would have indicated the presence of a critical situation, such as suicidality, psychosis, domestic violence, impending divorce, or school expulsion, and attending to these is clearly an immediate goal. For nonurgent mental health issues, the traditional goals noted for type 1 cases apply. In this regard, the evaluation would also have suggested any dynamic mechanisms connecting the excess weight with psychosocial problems, and the treatment goals might accordingly focus on modifying the connection [60; 108]. An example of this would be the goal of improving an obese depressed child's

ability to verbalize upsetting feelings to reduce both emotional eating and acting-out behavior. As noted, other decisions regarding the goals for dual-diagnosis children include designating priorities and establishing sequential or concurrent objectives.

### **Components**

For children whose depressive feelings, low self-esteem, or peer problems are related to weight bias, group therapy is an appropriate modality for universalizing distress, fostering mutual support, and sharing coping strategies [67; 109]. Individual counseling can either support the group process or serve as the primary intervention for these negative consequences. In this modality, play and cognitive-behavioral techniques can help the child modify faulty self-perceptions and problematic interpersonal patterns [110; 111].

A second dual-diagnosis profile consists of a specific psychiatric or family problem that accompanies the child's overweight. When depression, oppositional disorder, ADHD, and/or marital conflict or parental psychopathology impact on the child's energy imbalance, clinicians should implement evidence-based interventions in the forms of individual, group, parental, or family therapy [30; 40; 112; 113]. When indicated, psychopharmacologic treatment can be another component of the intervention effort, with the awareness that some psychotropic agents may lead to weight increases.

### **Parameters**

The parameters for modification of overweight follow the recommendations for type 1. For the negative emotional and social consequences of excess weight, group formats vary from time-limited, topically oriented (e.g., bullying) meetings to long-term, open-ended, unstructured support sessions. For the comorbid psychosocial or family problem, there are no consensus guidelines for the frequency or duration of contact. Until research clarifies this issue, practitioners should rely on the parameters associated with the chosen treatment modalities. It is also possible that in addressing parental psychopathology or marital problems, it may be necessary to collaborate with another clinician.

### **TYPE 3: OBESITY WITHOUT COMORBIDITIES**

#### **Goals**

For obese children with no medical or psychosocial comorbidities, the outcome goal is weight reduction followed by maintenance [7]. Most intervention efforts recognize that acquiring knowledge about healthy nutrition and physical fitness (as described for type 1) are corollary goals of losing weight [94]. However, decades of research and clinical practice confirm that, for the majority of children and families, didactic material and discussions are insufficient to achieve sustained weight loss outcomes.

#### **Components**

As discussed, there is general consensus that the components of most effective weight-loss programs consist of a parent-mediated diet and exercise plan, enhanced by cognitive-behavioral techniques [94; 114]. The parents are the primary agents of intervention, with responsibility for purchasing and preparing nutritious food; regulating eating opportunities, portion size, and snacking; limiting electronic entertainment; and promoting physical activity.

#### **Diet**

Of all the treatment components, a reduced-calorie diet is considered central to the weight-loss process for obese children. Although research has not been able to identify a single most effective weight-reduction diet, there are several approaches with both practical and proven value: modification of menu, structured diets, and consultation with a nutritionist.

Based on age-related recommendations, the child's caloric intake can be reduced via smaller portions, fewer eating occasions, limited or no consumption of sugar-sweetened beverages, and more selective dining out [94]. The obese child and his or her parents may find calorie counter texts and the more recent *Eat This, Not That* series to be both

user-friendly and empowering [115; 116]. Because research has indicated that parental attempts to limit food may actually undermine the child's self-regulation, this collaborative effort in designing the menu can be instructive for the child and reduce oppositionalism [117]. Mental health professionals should also be familiar with scientific controversies regarding the value of substituting low-fat or diet versions of snack foods, as well as methods to promote a greater range of tastes and textures in the child's diet [99; 118]. Innovative studies from the past decade offer practical and validated strategies and materials for improving children's nutritional choices [133].

Where modification of the child's current menu is either rejected by the family or unsuccessful after several months, the clinician should present to the child and parents several textbook child diets that have been validated empirically. The most widely researched program for children is the Traffic Light Diet, which utilizes the concept of red, yellow, and green signals to guide the child's eating behavior [119; 120]. Red light foods, which should be minimized or avoided, contain 5 or more grams of fat per serving; yellow light items, to be consumed in moderation, contain 2–5 grams of fat per serving. Green light foods, which contain less than 2 grams of fat and 20 calories or less per serving, are always preferred. Again, enabling the parents and child to select among structured diets can reduce the likelihood of battles over meals and snack items.

There are several circumstances in which consultation with a pediatric nutritionist will be indicated. Some parents will choose to meet with the nutritionist at the onset of treatment, while others will view this service as a last option. Two clear clinical indications are when the child has additional medical/dietary concerns, such as celiac disease or diabetes, that require nutritional management, or when previous dietary efforts have not been effective, despite apparent compliance and review of possible obstacles.

### **Physical Activity**

Obese children can benefit from the same exercise recommendations and limits on sedentary electronic entertainment proposed for types 1 and 2 overweight children. Clinicians should be aware that children with BMIs exceeding the 95th percentile may avoid physical activity due to embarrassment, the discomfort of exertion, and the inability to compete athletically [94]. Obese children may be helped to regain the joy of movement through yoga, tai chi, low-impact aerobics, and noncompetitive games and sports.

It is important to note that research findings are inconsistent regarding the long-term effects of exercise on weight loss, and families should be advised that physical activity alone is unlikely to produce a substantial or sustained reduction in weight [114]. Even school-age children can be helped to understand that one 500-calorie muffin can offset a full hour of aerobic effort.

A clinically useful concept is that exercise functions synergistically with a reduced-calorie diet, enhancing both the child's metabolic rate and his or her motivation and persistence to maintain food restrictions. The self-perception of feeling fit can serve as a stimulus to continue healthy eating and to more readily engage in physical recreation. Parents can serve as positive role models in this area [94]. Moreover, the same positive self-image can be a source of cognitive dissonance in avoiding snacking and fast food meals. Efforts to improve the child's physical fitness may also require a simultaneous reduction in access to electronic entertainment. In fact, there is some data indicating that decreasing this kind of sedentary activity may have a greater impact on weight loss than structured aerobics [101].

### **Cognitive-Behavioral Strategies**

The third component of obesity treatment for children incorporates behavior modification and cognitive therapy methods to facilitate dietary and fitness goals. While some families may readily adhere to prescribed diets and exercise regimens, many will require behavioral techniques to achieve the short- and long-term goals.

The behavioral strategies associated with obesity treatment for children focus on improving the child's self-control in conjunction with the parents' regulation of cues and opportunities associated with problematic eating and inactivity. For many families, monitoring a variety of behaviors will constitute their first short-term goal and intervention [121]. Food charts can record content of meals and snacks; caloric tallies; portion sizes; moods, hunger, and appetite when eating; amount of sweets and soft drinks vs. fruits and vegetables consumed; and the number or kind of faulty eating situations avoided. Exercise charts can track aerobic parameters such as duration, speed, and level; frequency and nature of activity; pedometer totals; or conversely, the amount of time devoted to television, computer, and game systems [104]. Monitoring the child's weight on a daily basis is not strategically useful, given the normal fluctuations and the misleading tendency to correlate the day's consumption (or lack of) with increases or decreases. Weekly intervals provide useful feedback, but measuring weight should not eclipse the importance of daily dietary goals, which are essential for steady progress. Twice-weekly weighing may be desirable for children who require more frequent reinforcement due to a short attention span or limited motivation.

In addition to monitoring, behavioral methods such as stimulus control, contingency contracting, and response cost may be needed to reward (or penalize) compliance with dietary and sedentary activity restrictions [104; 122]. It is, in fact, not uncommon for monitoring itself to require positive reinforcement. A guiding principle here is that smaller changes introduced gradually are more likely to be incorporated on a permanent basis [7].

Cognitive therapy techniques such as refuting and restructuring have been applied to dysfunctional beliefs, dichotomous thinking, and overgeneralization in the treatment of adult obesity, and these and other forms of “negative thinking styles” have been adapted for use with children [110; 123]. Clinicians should also consider incorporating into treatment compensatory coping mechanisms found among obese children, such as discounting or minimizing the importance of certain traits or abilities [124].

The final and perhaps most critical cognitive-behavioral strategy is maintenance of the reduced weight. This phase of treatment, also known as relapse prevention, provides the obese child and his or her parents with techniques for rapidly limiting weight regain and dealing with residual body image problems, which can undermine the child’s progress [125].

### **Parameters**

The parameters of childhood obesity treatment contain a wide assortment of formats with much variation in the frequency of sessions, the content of interventions, and the length of contact. As such, there are no consensus guidelines for treatment of this subtype. However, given the chronicity of excess weight for many afflicted children, much of the research supports the notion that longer contact (not necessarily continuous), measured in years, is associated with more favorable outcomes. Based on this observation, it is reasonable to proceed with the position that obese children will require more clinical contact to achieve a normal-range BMI. Weekly individual and parental sessions (the general model for therapeutic processes) can be a starting point for ongoing opportunities to modify ineffective methods and provide support and encouragement. When there has been limited or no weight loss over a three- to four-month period, there are several appropriate responses by the counselor:

- Review accuracy of monitoring: There is a documented tendency to underestimate portion sizes or to not recall the extent of grazing and snacking; make adjustments as needed.
- Search for faulty cognitive patterns in child and parent, especially negative or dichotomous thinking. Overgeneralizing a temporary setback, for example, can undermine motivation and result in inflexible coping.
- Recognize the child’s and family’s disappointment. Suggest genetic/metabolic explanations regarding the body’s resistance to losing weight.
- Refocus on maintaining current body weight. Re-initiate weight loss efforts in three to six months.

### **Session Protocol**

The family sessions recommended in the previous section can be structured via the following protocol:

- Weigh the child, if present (with a quality scale).
- Review food and activity charts, a key source of data and a process that reinforces child and parent compliance.
- Explore and address nonadherence or resistance. Faulty cognitions or behavioral routines may be responsible for the lack of success.
- Provide positive reinforcement for completion of task or goal.
- Summarize session and plan the next visit, for the purpose of providing feedback and a sense of continuity for the family.

The most likely consultation regarding the type 3 child will be with a pediatric nutritionist. Collaboration with the nutritionist is best achieved in an atmosphere of mutual respect and the clear delineation of roles. In instances in which the nutritionist will provide ongoing counseling (as opposed to a single consultation), timely communication between clinicians is critical for successful management.

#### **TYPE 4: OBESITY WITH COMORBIDITIES**

##### **Goals**

The obese child with comorbid medical and/or psychosocial disorders is the most clinically challenging of all the typology profiles. Combining the treatment goals of type 2 and type 3 profiles, practitioners may need to focus on weight reduction and mental health and/or health issues, either concurrently or in sequence. Where there is a dynamic mechanism presumed to connect both issues, this itself becomes a target of intervention.

##### **Components**

Given both conditions, the components of treatment include family-based behavior modification to support diet and exercise and the full range of counseling and psychotherapeutic approaches, including medication when indicated for psychosocial and family problems. Unfortunately, few practitioners or clinics are able to provide the integrated, comprehensive treatment indicated for these children.

##### **Parameters**

As noted with the type 3 child, the frequency and duration of clinical contact reflects the chronicity of early-onset obesity. Treatment for mental health problems is guided by the parameters recommended in evidence-based interventions. The decision to address one or multiple issues will also shape the parameters of treatment. Limited weight loss should be reviewed according to guidelines for type 3 obesity, and the same session profile applies to

weight reduction. When the psychosocial or family problem is treated concurrently, practitioners may opt to divide sessions between designated topics. However, if the weight problem is not the current agenda, there should be no weigh-in nor calorie review.

##### **Dynamic Mechanisms**

While it is clinically evident that any psychiatric disorder can present with obesity, epidemiologic research has noted three diagnostic correlations with excess weight in childhood. The interactive connection between childhood obesity and ADHD, oppositional defiant disorder, and depression may involve specific mechanisms that should be addressed in treatment [30; 51; 60]. There are some preliminary findings regarding the prevalence of overweight and obesity among children with autism spectrum disorders, but this is not discussed in this section due to methodologic limitations of the data [126]. This has also been documented for children with intellectual limitations, and the prevalence of binge eating disorder among pre-adolescents requires further investigation [134].

The linear relationship between ADHD and excess weight is presumed to involve the child's poor self-regulation; however, the child's socioeconomic status also has been shown to be strongly associated with overweight and obesity in children with ADHD [40; 127]. Impulsivity and planning/organizational deficits can fuel excess snacking, frequent fast food meals, and a lack of self-discipline regarding dieting and exercise. The ADHD child's difficulty with peer relations and physical coordination can lead to a preference for sedentary electronic entertainment, a known correlate of excess weight in children [51]. Compounding the child's inherent impairment is the likelihood that, based on genetic loading, at least one of the child's parents also struggles with executive functions deficits. Helping an ADHD parent structure an ADHD child's eating and exercise behavior can be a formidable task.

Depression and childhood obesity appear to be mutually reinforcing, with dysphoric feelings relieved by overeating and, in turn, excess weight and the consequent stigma leading to emotional distress [128; 129]. Obese depressed children will also suffer from peer rejection, which can translate into isolated electronic recreation.

There is a similar bidirectional relationship between oppositional defiant disorder and childhood obesity [30; 60]. An obese toddler or preschooler with a demanding appetite may experience increasing parental food controls, leading to defiant eating behavior and intensified parental limits. Family systems theorists may also recognize the role of parent-child food battles in triangulating homeostasis and achieving equilibrium via the child's excess weight.

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## MULTIDISCIPLINARY COLLABORATION

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Given the multifaceted nature of childhood obesity, practitioners will most likely need to collaborate with other professionals, including pediatricians, medical specialists, nurses, nutritionists, and exercise physiologists. For children with comorbid psychosocial or family disorders, contact among clinical social workers, counselors, psychologists, psychiatrists, therapists, and teachers may also be necessary. The collaborative efforts may focus on assessment, treatment, or both.

Due to the wide-reaching boundaries of mental health care, mental health practitioners maintain liaisons with a variety of other disciplines and often develop an expertise in collaboration [130; 131; 132]. These relationships are not only clinically necessary but can generate creative research and novel interventions, important ingredients in addressing any epidemic. The key to effective teamwork begins with genuine appreciation and respect for one's colleagues. Cooperation is enhanced by learning about the philosophies and methods of other practitioners, which can also minimize potential territorial conflicts. Commu-

nicating diagnostic and intervention data is best achieved by formally structuring the frequency and method of contact. This kind of team effort is exemplified in tertiary-level childhood obesity clinics and facilities involving continuous interaction among physicians, nutritionists, mental health professionals, and exercise trainers.

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## CONCLUSION

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Childhood obesity has reached epidemic proportions and threatens to undermine our national health, economy, and military capacity. While the response to this public health crisis has emphasized primary prevention, the estimated 10 million overweight and obese American youth deserve comprehensive and effective treatment.

In order to help these children and families, mental health professionals must become more knowledgeable about the causes and consequences of childhood obesity as well as healthy nutrition and physical fitness. The proposed practice model emphasizes parent-mediated diet and exercise supported by cognitive and behavioral methods.

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## RESOURCES

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### BOOKS

The following is a sampling of books that provide useful suggestions for parents and children regarding healthy nutrition, physical fitness, and coping with excess weight.

#### General

Sothorn MS, von Almen TK, Schumacher H. *Trim Kids*. New York, NY: Harper Collins; 2001.

Earles KA, Moore SE. *Scale Back*. Chicago, IL: Hilton; 2008.

Pitman T, Kaufman M. *The Overweight Child*. Buffalo, NY: Firefly; 2000.

Sears W, Sears P, Foy S. *Dr. Sears' L.E.A.N. Kids*. New York, NY: Penguin; 2003.

Hassink S (ed). *A Parent's Guide to Childhood Obesity: A Road Map to Health*. Washington, DC: American Academy of Pediatrics; 2006.

Levine J, Bine L. *Helping Your Child Lose Weight the Healthy Way: A Family Approach to Weight Control*. New York, NY: Citadel; 2001.

Satter E. *Your Child's Weight: Helping Without Harming, Birth through Adolescence*. Madison, WI: Kelcy; 2005.

Lapine MC, Didio L. *Sneaky Fitness: Fun Fool-proof Ways to Slip Fitness into Your Child's Life*. Philadelphia, PA: Running; 2009.

## **Nutrition**

Pollan M. *The Omnivore's Dilemma—The Secrets Behind What You Eat (Young Readers Edition)*. New York, NY: Penguin; 2009.

Story M, Holt K, Sofka D (eds). *Bright Futures in Practice: Nutrition*. 2nd ed. Arlington, VA: Georgetown University; 2002.

Sears W, Sears M. *The Family Nutrition Book*. New York, NY: Little Brown; 1999.

## **Fitness**

Patrick K, Spear B, Holt K, Sofka D (eds). *Bright Futures in Practice: Physical Activity*. Arlington, VA: Georgetown University; 2001.

## **WEBSITES**

### **General**

#### **Kidnetic.com**

<http://www.kidnetic.com>

Nutrition and fitness information for children 9 to 12 years of age.

#### **KidsHealth**

<http://www.kidshealth.org>

Elaborate program with tips, cartoons, games, and resources. Also provides a 10-week curriculum for healthy living for families, suitable for individual or group format.

### **Team Nutrition**

<https://www.fns.usda.gov/tn/team-nutrition>  
Initiative of the USDA Food and Nutrition Service supporting child nutrition programs.

### **Action for Healthy Kids**

<http://www.actionforhealthykids.org>

Fights childhood obesity, undernourishment, and physical inactivity by helping schools become healthier places.

### **Let's Move**

<https://letsmove.obamawhitehouse.archives.gov>  
Nutrition and fitness information in relation to former First Lady Michelle Obama's *Let's Move* campaign.

### **Alliance for a Healthier Generation**

<https://www.healthiergeneration.org>  
Nutrition and fitness information for school programs.

### **Weight Management**

#### **Blubberbusters**

<http://www.blubberbuster.com>

Promotes worldwide exchanges for children, teens, and parents regarding overweight. Clinicians can track and interact with patients on this website.

#### **SHAPEDOWN: Weight Management for Children and Adolescents**

<http://www.shapedown.com>

Guides children, teens, and parents in addressing practical and emotional issues in weight control.

#### **The Center for Health and Health Care in Schools**

<http://www.healthinschools.org>

Resource center for information regarding general child health and childhood obesity.

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