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A MULTI-DISCIPLINARY APPROACH TO CHILDHOOD OBESITY

PROFESSIONAL DISSERTATION

SUBMITTED TO THE FACULTY

OF

**THE SCHOOL OF PROFESSIONAL PSYCHOLOGY
WRIGHT STATE UNIVERSITY**

BY

ERINN JANAY WRIGHT, PSY.M., M.ED.

**IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE
OF
DOCTOR OF PSYCHOLOGY**

Dayton, Ohio

September, 2013

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July 10, 2012

I HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER MY SUPERVISION BY **ERINN JANAY WRIGHT**, ENTITLED **A MULTI-DISCIPLINARY APPROACH TO CHILDHOOD OBESITY** BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PSYCHOLOGY.

Janece Warfield, Psy.D.
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Associate Dean

Abstract

In the past two decades, the prevalence of childhood obesity has risen throughout the world. Factors that put children at risk for childhood obesity include genetics, parental weight and lifestyle, gender, age, and socioeconomic status. Various disciplines address treatment of childhood obesity differently. For example, the medical community focuses on potential consequences of childhood obesity; the mental health field conceptualizes the issue behaviorally, and social work research highlights the sociopolitical factors of the issue. Results of a needs assessment performed in the Dayton, Ohio and Montgomery County region from 2009-2010 revealed a lack of collaboration between various disciplines involved in the treatment of obese children in addition to a lack of parental knowledge and involvement. Furthermore, research currently lacks a model for identifying and treating childhood obesity collaboratively. This dissertation reviews the current literature on the prevalence of childhood obesity as well as the risk factors. It proposes a multi-disciplinary resource guide designed to assist healthcare providers and clinicians as well as to increase access to information and services for parents. Much of the focus of the resource guide is on empowering parents to teach their children the importance of a healthy lifestyle.

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I love you all very much!

Erinn

Dedication

This resource guide is dedicated to Inez Beverly Prosser, the first African American female psychologist in the state of Ohio. Ms. Prosser earned her doctoral degree from the University of Cincinnati in 1933. Her dissertation, “The Non-Academic Development of Negro Children in Mixed and Segregated Schools”, looked at issues related to educational reform, social development, racial identity, and segregation. Sadly, Ms. Prosser died in an automobile accident the following year. She never had the opportunity to experience the fruits of her labor; however, she blazed the trail to make my doctoral school experience possible.

Chapter One:

Childhood Obesity

The rising number of children who are obese is not just an issue within the individual, but rather it is a community, institutional, and societal problem. The answer to effectively meeting the needs of this population, therefore, lies within these sectors. Amongst American children in particular, obesity has reached nearly epidemic proportions within the last twenty years. A recent study by the Centers for Disease Control and Prevention (Centers for Disease Control and Prevention [CDC]), reports that 19.8% of children aged six to eleven in the United States are obese (CDC, 2009). This is a drastic increase from the 7% prevalence rate reported in 1980.

Childhood obesity has become one of the most serious public health challenges within the 21st century. The World Health Organization (WHO) reports that globally, the number of overweight children under the age of five is estimated to be over 42 million (World Health, 2010). Studies of international populations report comparable rates of increase, so that if current trends remain unchecked, childhood obesity is likely to challenge worldwide public health (Must & Strauss, 1999; WHO, 2010). Recently, the issue of childhood obesity has received widespread media publicity, and has captured the attention of congressional leaders. First lady Michelle Obama has called childhood obesity a “public crisis” and she has implemented a national campaign that will promote physical fitness within children and families, as well as require school districts to develop comprehensive wellness plans (Patuwo, 2010).

Childhood obesity poses increased risks for future medical conditions. Obese children are more likely to have high blood pressure and high cholesterol, which are risk factors associated with cardiovascular disease. In one population-based sample of 5 to 17 year olds, 70% of obese youth had at least one of the aforementioned risk factors (CDC, 2009). Mediated by such factors as genetics, behavior, and environment, obesity has both immediate as well as long-term health risks. Healthy lifestyle patterns are developed in early childhood and often continue throughout the lifespan. Therefore obese children are at increased risk for becoming obese adults. Obese adults are at an increased risk for medical conditions including hypertension, Type 2 diabetes, stroke, and cardiovascular disease, all which may contribute to a shortened lifespan (CDC, 2009).

Furthermore, obesity has been linked to psychological concerns such as social isolation, low self-esteem, and depression (CDC, 2009). The current increase in childhood obesity likely denotes the potential for a rise in adult obesity in later years if lifestyle changes are not made.

The Role of Parents

Parental influence is important in the treatment and prevention of childhood obesity since parents are generally responsible for the selection and preparation of foods. Parents also communicate values regarding health and wellness to their children. Genetics and cultural make-up play a role in childhood obesity in that research has shown that children born to parents that are obese are likely to become obese themselves.

Lindsay, Sussner, Kim, and Gortmaker, (2006) conclude that preventing and controlling childhood obesity will require multifaceted and community-wide programs and policies, with parents playing a critical role. Interventions aimed at preventing

childhood overweight and obesity should involve parents as important forces for change in their children's behaviors. According to studies performed by Barlow & Dietz (1998) and Etelson, Brand, Patrick, & Shirali (2003), there are several key treatment concepts that are unique to the treatment of obesity in children. Primarily, treatment must be family centered and developmentally appropriate. Also parents must understand that excess weight poses a health risk. Since most parents of children with a weight problem often fail to recognize that their child is overweight, treatment involves educating parents in order to help them change their misperceptions (Etelson, Brand, Patrick, & Shirali, 2003). Leading authorities on childhood obesity recommend that for treatment to be long-term and effective, parents must be active participants in children's weight loss (Epstein, 2010). By making healthy eating and regular physical activity a family priority, parents do not treat their overweight or obese children differently from the rest of the family. Placing children on special diets or exercise programs outside of the regular routine generally produces short-term, minimal results. Involving parents in the treatment of childhood obesity is a strategy that is consistent with the results of a needs assessment of Dayton, Ohio and Montgomery County, which recommended that parental involvement be made paramount for successful prevention and treatment of childhood obesity (Warfield, Wright, & Townsend, 2010). Results also indicated that the lack of parental involvement was the primary barrier to the implementation of effective childhood obesity interventions (Warfield, Wright, & Townsend, 2010). Lasting change in young children's behavior is often linked to parental reinforcement, therefore any treatment should include parental involvement. Educating parents and children on the importance of healthy eating and physical activity is an important step in empowering families to feel in control of

weight management. Research has also revealed that most parents feel comfortable seeking advice from their child's primary care physician, suggesting the importance of an integrated medical setting.

The Importance of Integrated Medical Settings

The treatment of childhood obesity often includes behavioral interventions, education, and in some cases, medical procedures. Evidence-based treatment incorporates a multi-disciplinary approach including medicine, nutrition, physical education, family involvement, and behavior modification (American Academy of Pediatrics [AAP], 2003; Zemetkin, Zoon, Klein, & Munson, 2004; Jefferson, 2005; Expert Committee, 2007). Epstein, Myers, Raynor, & Saelens (1998) conclude that behavioral therapy techniques should play a central role in treatment programs for childhood obesity.

Helping families achieve healthy lifestyle changes is an important part in the battle against childhood obesity. Examining the long-term consequences of childhood obesity, overweight adolescents have a 70 percent chance of becoming overweight or obese adults. This value increases to 80 percent if one or more parents are obese (CDC, 2009). Programs aimed at targeting childhood obesity do so by looking at increased education regarding nutrition and health, advocating and encouraging physical activity, and reducing television screen time. A comprehensive treatment approach involving professionals from multiple disciplines will lead to clearly definable goals and the development of an individualized treatment plan that takes into account the uniqueness of individual and family strengths as well as challenges (Ward-Begnoche et al., 2009). Therefore, clinicians, who play an important role in understanding the psychological effects of childhood obesity, are an important part of the treatment puzzle.

The Role of Mental Health Clinicians

The most immediate and common consequences of childhood obesity amongst children are psychosocial, highlighting the vital role of mental health clinicians in addressing this epidemic. Obesity appears to be a contributing factor to the development of mental health problems in children as higher rates of depression, anxiety, eating disorders, and behavioral problems have been found amongst obese children (Zametkin, Zoon, Klein, & Munson, 2004; Bosch, Stradmeijer, & Seidell, 2004). Children themselves perceive social discrimination and low self-esteem as common consequences of being obese (Schwimmer, Burwinkle, & Varni, 2003).

Mental health clinicians can assist families in the behavior changes necessary to combat childhood obesity as well as address the bio/psycho/social attributes on which childhood obesity converges. Establishing goals with the family is crucial to measuring intervention success. Traditional therapy goals such as reducing distress and improving adaptive behavior and coping skills, can be applied to childhood obesity treatment planning.

Clinicians should also be aware of community resources that may help with healthy lifestyle changes. Clinicians need to understand the social and physical context in which children live, attend school, and play. They must also play a role in advocacy, policy setting locally and nationally, and in schools to help develop a healthy environment to prevent and treat childhood obesity.

Childhood Obesity in the Dayton Community

In Montgomery County, childhood obesity is a serious issue seen by both medical and mental health professionals. A literature review of current best practices for the identification and treatment of childhood obesity was conducted by this author alongside a community based needs assessment within Dayton, Ohio and Montgomery County in 2009-2010. The purpose of this needs assessment was to determine how local organizations were addressing childhood obesity through either prevention or treatment (Warfield, Wright, & Townsend, 2010). Fifteen participants from local primary care facilities, sports medicine centers, local public and charter schools, and community recreation centers were surveyed to determine what actions were currently being taken in the identification and treatment of obese children. Through a review of the literature and results from the survey, recommendations were developed. These recommendations included increasing communication between various disciplines related to the identification and treatment of childhood obesity, increasing parental involvement in childhood obesity initiatives, and addressing cultural variables related to food choices and preparation.

One theme throughout the literature was the lack of collaboration between programs targeted toward obese children. This theme was consistent with findings from the needs assessment of the programs and the curriculum within the Dayton community as well. Additionally a lack of communication between professionals and caregivers of obese children contributed to a decrease in access to care. Research has shown that effective obesity related health and nutrition programs are ones that involve both

identified clients and caregivers, as well as any other individuals involved with physical and mental health of the client (CDC, 2009).

Summary

It is critical that clinicians, parents, and children have mutually agreed upon goals and an open dialogue is needed to assure that everyone is working toward the same end (Caprio et al., 2008). Goals should be realistic, of specific duration, and revised as needed. A resource guide for use by counselors, social workers, physicians, mental health clinicians, dieticians, and other professionals involved in the care of children can provide important information to parent, children, and families affected by childhood obesity. It can also serve as a prevention tool by educating parents and children who are at risk for becoming obese. Clinicians and parents should work together to include recommendations from the resource guide in treatment planning.

This dissertation will address several key elements in the identification and treatment of children and families with obesity. Chapter One provided a brief introduction about the importance of preventing and treating childhood obesity. Chapter two will provide a review of the literature regarding the prevention and treatment of childhood obesity including risk factors, prevalence rates, diversity issues, treatment recommendations, and the importance of a childhood obesity resource guide. Chapter three will discuss the elements of the resource guide including the intended audience, and guidelines for use. Chapter four will discuss future directions and provide a summary of findings. Appendix A is an example of the resource guide, Appendix B is a resource guide effectiveness survey, and Appendix C is a diagram of the socio-ecological factors associated with childhood obesity.

Chapter 2

Literature Review

Childhood Obesity

Childhood obesity is a serious health condition that affects children and adolescents. Over the past thirty years, the prevalence of childhood obesity has tripled in the United States. There are multiple causal factors associated with the increased prevalence of this condition. Environmental factors, lifestyle preferences, and cultural environment all play a role in the rising prevalence of obesity worldwide. At the individual level, childhood obesity is the result of an imbalance between the calories a child consumes in food and beverages and the calories a child expends to support normal growth and development, metabolism, and physical activity (Mayo Clinic, 2010). At the societal level, today's children are spending more time engaging in sedentary activities such as computer and video games, as well as eating diets that are high in sugar, calories, and sodium. The preventable nature of childhood obesity lends itself to increased research regarding measures of prevention and intervention.

The medical community defines and measures obesity in adults by a calculation of Body Mass Index (BMI), which creates a ratio of an individual's weight and their height in order to determine weight status. Measurements are calculated by dividing weight (in kg) by height (in m²). This value is then charted according to an individual's height and weight. A BMI of 25 to 29.9 indicates that a person is overweight and an individual with a BMI of 30 or higher is considered obese (CDC, 2009). BMI is the most

commonly accepted method of determining obesity in adults for several reasons. First, it is relatively easy to obtain the height and weight measurements needed to calculate the BMI number, secondly, measurements are non-invasive, and finally, BMI numbers correlate with the amount of adiposity or “fatness”.

A BMI number is not, however, the best diagnostic measure for children (Zametkin, Zoon, Klein, & Munson, 2004). Children normally carry different amounts of body fat at various stages of their development, thus not all children that carry extra pounds are overweight or obese. Body mass index in childhood changes with age so, in order to more universally define childhood obesity, a cut off point related to age is needed. Also, although the BMI number is calculated the same way for children and adults, the criteria used to interpret the BMI number differs from those used for adults (CDC, 2009). For children and adolescents, BMI age- and sex- specific percentiles are used because the amount of body fat changes with age and the amount of body fat differs between girls and boys. BMI – for- age growth charts take into account these differences and allow translation of a BMI number into a percentile for a child’s age and sex (CDC, 2009). In the United States, the 85th and 95th percentiles, respectively, of body mass index for age and sex based on nationally representative survey data have been recommended as cut off points to identify overweight and obesity.

Childhood obesity trends are difficult to quantify or to compare internationally, due to a wide variety of definitions of child obesity that are in use. As such, no commonly accepted standard has yet emerged. Guidelines established by the Centers for Disease Control and Prevention help identify criteria to designate overweight and obese children. By these guidelines, a BMI between 85th and 94th percentiles is considered

overweight while BMI's in the 95th percentile or above are considered obese (CDC, 2009). International standards and guidelines differentiate between overweight and obesity, with BMI's greater than 85th percentiles considered as overweight (World Health Organization [WHO], 2000). Identifying children who are overweight is important in that those children are at increased risk for becoming obese, and interventions should be aimed at healthy lifestyle choices to prevent further weight gain.

Prevalence Rates

The Centers for Disease Control and Prevention recently reported that nearly 20% of American children aged two to nineteen are obese. Amongst preschool children aged two to five years old, this constitutes an increase in prevalence of 50 % from 2007-2008 (CDC, 2009). And in children aged six to eleven years old, prevalence rates grew from 6.5 % in 2007 – 2008 to 19.6% in 2010, an increase of 75% (Mayo Clinic, 2010).

Childhood obesity is not only a crisis for North Americans, as similar trends have been observed in developing countries and regions where an increase in Westernization of behavioral and dietary lifestyles is evident (Deckelbaum & Williams, 2001). For example, internationally approximately 22 million children under five years of age are obese (WHO, 2000). In China, the rate of overweight and obese children increased from almost 8% in 1991 to more than 12% in 1997. In Brazil, the rate of overweight and obesity among children and adolescents 6 to 18 years old more than tripled from 4% in the 1970s to over 13% in 1997 (WHO, 2000).

Closer to home, the Ohio Department of Health reported that more than 30% of children and adolescents in Ohio qualified as overweight or obese following a study that

evaluated the prevalence of third graders in Ohio in 2009-2010 (Oza-Frank, Scarpitti, Wapner, & Conrey, 2011).

Researchers at Columbia University's Mailman School of Public Health and Oxford University forecast obesity prevalence for adults in the U. S. will reach 65 million by 2030 (Wang, 2011). These adult obesity predictions are useful tools in implementing childhood obesity prevention and intervention mechanisms since studies have shown that without intervention, obese children become obese adults.

Factors that increase the risk of childhood obesity

There are multiple factors associated with childhood obesity and to date, research has been unable to isolate the effects of a single factor related to increased risk of childhood obesity (Department of Health and Human Services, 2002). Generally, factors including the lack of physical activity, unhealthy eating patterns, genetics, socio-economic status, race/ethnicity, parent- child interaction factors, media and marketing, and the physical environment, all have been found to influence the maintenance and development of childhood obesity (WHO, 2000).

Studies indicate that certain genetic characteristics and rare gene mutations may increase an individual's susceptibility to gaining excess body weight (Farooqi & O'Rahilly, 2006). Genetic diseases and hormonal disorders that can make a child more likely to be obese are far less common and affect a very small number of children. In fact, childhood obesity has been linked to a small array of medical problems caused by inherited genetic defects that interfere with the body's metabolism, known as metabolic disorders. For example, obesity is a clinical feature for rare genetic disorders such as Cushing's Syndrome, Turner's Syndrome, Cohen, and Prader-Willi Syndrome (Bouchard,

2009; Moran, 1999). Also hormonal disorders such as hypothyroidism have obesity as a main diagnostic feature, although rarely encountered in children (Moran, 1999).

The number of disorders caused by gene mutations and exhibiting obesity as a clinical feature is increasing. However, the rapid rise in the rates of overweight and obese children in the general population in recent years cannot be attributed solely to genetic factors. Genetic susceptibility, although an important factor to consider in determining the cause of childhood obesity, may need to exist in conjunction with other contributing variables such as environmental and behavioral factors to have a significant effect on weight. Since the genetic characteristics of the human population have not changed in the last three decades but the prevalence of obesity has tripled among American school-aged children during that time, the underlying problem likely lies in the intersection of various risk factors (Bouchard, 2009; CDC, 2009).

One important risk factor of childhood obesity is the parent-child relationship. Parent-child relationship patterns can influence childhood obesity in several ways. Primarily, parents model behavior and attitudes towards food and activity (Welsh, Cogswell, Rogers, Rockett, Mei, & Grummer-Strawn, 2005). Children look to and imitate adults, and look to them to learn about appropriate behavior. As role models, parents who do not monitor their own behavior will likely have children that do not acquire healthy attitudes towards eating and exercise. Additionally, parental obesity has been found to highly correlate with obesity in children. Several studies on predictors of childhood obesity found parental obesity was the primary risk factor involved in childhood obesity (Parsons, Power, & Logan, 1999; Reilly et al, 2005). In fact, in a longitudinal study by Agras and colleagues, 150 children and their parents were tracked

from birth to age five. Some monitored variables included infant weight, parent weight, and child eating behaviors and these attributes and behaviors were used to predict whether the child would be overweight by nine years old. Researchers found that 25 percent of the children were in the 85th percentile of BMI at nine years of age, and nine percent that were in the 95th percentile. They also found that 48 percent of children with overweight parents became overweight themselves, compared with 13 percent of those with normal-weight parents (Agras, Hammer, McNicholas, & Kraemer, 2004). Parental weight and attitudes toward health is an important risk factor to consider when conceptualizing the treatment of childhood obesity.

Another factor to consider in conceptualizing the causes of childhood obesity is environment. Environment can include the child's home, childcare, school, and community. Within the home, school, and community environments, children develop behaviors and values surrounding food choices and physical activity. These factors, therefore, are directly related to a child's caloric intake as well as the amount of physical activity exerted. For example, almost 80% of children aged five years and younger with working mothers are in child-care for 40 hours a week on average (National Research Council and the Institute of Medicine, 2003). Overfeeding is a practice that is common to infants that are bottle-fed, as parents and caregivers often do not understand that it is not necessary for an infant to finish every bottle. Breast feeding and delaying the introduction of solid foods may decrease the risk of future weight problems (Moran, 1999). Since childcare providers are sharing responsibilities with parents for children during important developmental years, this is a setting in which healthy eating and physical activity habits are developed and maintained.

Schools play an important role in childhood obesity because nearly 95% of America's youth are enrolled in schools (CDC, 2009). Schools can help students adopt and maintain healthy eating and physical activity behaviors. The CDC has published guidelines that identify school policies and practices most likely to be effective in promoting lifelong physical activity and healthy eating (CDC, 2009). Sadly, most primary, middle, and secondary schools across the country do not provide even 30 minutes of daily physical activity to students (Caprio et al., 2008). Policies must be put in place to insure that students have a requisite amount of physical activity each week and that schools have adequate equipment and facilities.

Regional differences have a role in the maintenance of childhood obesity as well. The National Health Examination Study examined the relationship between childhood obesity and such physical environmental factors such as region, season, and population density. Results from a survey of 7,119 children aged six to eleven years old from a representative sample of the United States population revealed that the prevalence of obesity (measured by BMI >85 percentile) was significantly more in the Northeast and Midwest regions than in Western regions. Also obesity was significantly more prevalent in large metropolitan areas than in areas with lower population densities (Dietz & Gortmaker, 1994). This finding has important implications for preventative and community interventions, and suggests interventions be tailored to fit the geographic needs of the population in addition to other more obvious factors such as culture and socioeconomic status.

The amount of time spent engaging in sedentary activities as opposed to active, outdoor activities is yet another risk factor involved in childhood obesity. With the

advent of computers and electronic video games, children have become less physically active and spend more time engaging in indoor activities. Several studies have found a positive association between the amount of time spent viewing television and obesity. The time children spend watching television, playing video games, and using the computer is often referred to as “screen time” and American children participate in a considerable amount of screen time. One study found that time spent watching TV, videos, DVDs, and movies averaged slightly over 3 hours per day among American children aged eight to eighteen years (Roberts, Foehr, & Rideout, 2005). In a study by Stettler, Signer, & Suter (2004) of European children, sedentary activities such as television watching and electronic video game playing averaged 2.03 hours of television watching or video game playing was strongly correlated to obesity among European children. Children engaging in these activities more than two hours per day are twice as likely to be overweight or obese as those whose daily watching totals an hour or less (Shields, 2004). Studies conducted by the American Journal of the Academy of Pediatrics found that screen time was associated with obesity among children as young as preschool aged (Dennison, Erb, Jenkins, 2002). The study also concluded that having a television in a child’s bedroom is an even stronger marker of increased risk of being overweight or obese. Implications from these studies highlight the importance of educating parents about the link between screen time and obesity, as well as educational efforts about limiting screen time and removing televisions out of children’s bedrooms at an early age.

Television watching may also influence children to make unhealthy food choices through exposure to food advertisements (Lowry, Wechsler, Galuska, Fulton, & Kann 2002; Francis & Birch, 2006). Advertisers target children with ads that feature sugary,

high calorie drinks. Similarly, evidence is growing to suggest an association with consuming sugar-sweetened drinks and weight gain in children and adolescents (Ludwig, Peterson, & Gortmaker, 2001). It is likely that consuming sugar-sweetened drinks may be associated with obesity because these drinks are high in calories and children may not compensate at meals for the calories they have consumed in sugar-sweetened drinks, although this may vary by age (Sherry, 2005).

Researchers have coined the term “toxic environment” which describes our current societal focus on the consumption of supersized portions of high fat, high sugar foods, while discouraging physical activity among children and adolescents (Wadden, Brownell, & Foster, 2002). This toxic environment affects children in that many advertisements feature foods that are high in sugar, sodium, and calories in addition to being larger than the recommended daily amount. Initiatives should be undertaken to regulate food advertising directed at children. Media use, and specifically television viewing, may displace time children spend in physical activities as well as contribute to increased energy consumption through excessive snacking and eating meals in front of the television. Studies have shown that marketing and advertisements targeted at children and featured on children’s programming channels, often feature high calorie beverages and foods rather than nutrient rich snacks (Wood, 2004).

The lack of physical activity contributes to childhood obesity as well. Physical activity is an important component of healthy weight, and children who do not exercise, or who exercise very little, are more likely to gain weight because they are not burning excess calories. The CDC reports that participating in physical activity is important for children and adolescents, as it may have beneficial effects not only on body weight, but

also on blood pressure and bone strength (2009). Additionally, physically active children are also more likely to remain physically active throughout adolescence and possibly into adulthood (Malina, 1996).

Factors such as genetics, family interactions, physical environment, level of physical activity, and screen time all contribute to the development and maintenance of childhood obesity. A comprehensive approach to the treatment and prevention of childhood obesity should address these factors.

Diversity Variables Associated with Childhood Obesity

Childhood obesity occurs in every state in the United States, and includes youth of all social and economic levels. However, research shows that SocioEconomic Status (SES) is associated with a wide array of outcomes in children, with effects beginning prior to birth and continuing into adulthood (Bradley & Corwyn, 2001). Children from low -income communities tend to have the highest obesity rate for several reasons. The environment within a community can influence access to physical activity opportunities and access to affordable and healthy foods. For example, a lack of sidewalks, safe bike paths, and parks in neighborhoods can discourage children from playing outside, walking or biking to school, as well as from participating in physical activity. Additionally, lack of access to affordable, healthy food choices in neighborhood food markets can be a barrier to purchasing healthy foods (Moreland, Wing, Diez, & Poole, 2002). These barriers all contribute to the increased prevalence of obesity within low- income communities (Department of Health and Human Services, 2009).

A cross national comparison of socioeconomic status and childhood obesity, yielded results that suggest in the United States, low SES groups are at an increased risk

for obesity. Overweight families from low SES have the highest risk of overweight and obese children (Wang, 2001). This likely results from previously mentioned factors including the learned pattern of behavior surrounding food choices and preparation style, lack of access to affordable healthy food choices, as well as genetic susceptibility. Low-income families are more likely to live in neighborhoods where access to affordable and fresh fruits and vegetables is limited. Increased screen time has been linked to socioeconomic factors as well (Wood, 2004). Payne (1994) found that families from low-income environments are more likely to depend on screen time and other sedentary activities as forms of entertainment. In fact, Carson, Spence, Cutumisu, and Cargill (2010) found that children living in low SES neighborhoods were significantly more likely to be video game users compared to children living in high SES neighborhoods, and girls living in low SES neighborhoods engaged in significantly more weekly overall screen time and TV/movie minutes compared to girls living in high SES neighborhoods.

Low-income families are more likely to live in neighborhoods where outdoor activities such as bike riding and skating are too dangerous due to crime and gang activity. A research team at the Urban Institute in Washington (Long, Hendey, & Pettit, 2007) analyzed the relationship between community characteristics and the prevalence of childhood obesity using U.S. census data and zip code tracking procedures. Participants were tracked nationwide, in accordance to the zip code of they resided in. Findings from the study indicated that the childhood poverty rate in zip codes predicted to be at the highest risk for obesity was nearly 40 percent. Recommendations for interventions within high poverty, low SES areas include recognition of the context of underlying economic

issues and programs tailored to the children and families at risk (Long, Hendey, & Pettit, 2007).

Literature also suggests that obesity does disproportionately affect certain minority populations. The relationship among race, gender, SES, and childhood obesity may result from a number of underlying causes including cultural attitudes about body weight, less healthy eating patterns, more sedentary behavior, and engaging in less physical activity. Research conducted by the Department of Health and Human Services found that African- American and Mexican- American youth were more likely to be overweight than non-Hispanic white youth (2002). In children six to eleven years old, 22 percent of Mexican- American children were overweight, whereas 20 percent of African- American children and 14 percent of non-Hispanic white children were overweight.

A number of studies reveal that amongst non-Hispanic white children, SES is negatively correlated with obesity (Sobal & Strunkard, 1999). Non-Hispanic white children from middle class and upper class SES are less likely to be obese than their lower SES counterparts. This relationship however, it not apparent among African American or Mexican American children such that children from these ethnic backgrounds are no less likely to be obese than those in families with lower socioeconomic status. Resources are needed in order to make healthy eating choices as well as engage in outdoor activities, and resources are often scarce in low income populations and amongst minority groups that have been affected by discrimination, poverty, and lack of opportunities.

Amongst minority populations, certain subgroups appear to be particularly susceptible to becoming obese. Recent data reports that more than 45 percent of African-

American girls between six and eleven years old were overweight or obese compared to non-Hispanic white children (38 percent) and Mexican American (38 percent) girls of the same age (Koplan, Liverman & Kraak, 2005; CDC, 2010). Thus, African American girls appear to be at increased risk for obesity and have emerged as a priority population for prevention and treatment efforts (Strauss & Pollack, 2001). Hispanic boys are another subgroup that is at an increased risk for obesity, as data reports that Hispanic boys, aged 2 to 19 years, were significantly more likely to be obese than non-Hispanic white and African American boys (CDC, 2010).

The reasons for the cultural disparity among child are multi-factored. With ethnic minority children from low SES backgrounds representing highest prevalence rates, prevention as well as treatment efforts should address cultural diversity variables. Similarly, clinicians should be trained to be aware of, and sensitive to the various systemic barriers that might impact clients including family composition, SES, and discrimination.

The Implications of Childhood Obesity

A well-known African proverb states, “It takes a village to raise a child”, indicating that the responsibility of educating, empowering, and fostering growth in children is not the sole responsibility of parents, but is the responsibility of every person involved in a child’s life. Never is this point more poignant than when it describes the needs of children who are overweight or obese. Institutional and community sectors must be called upon to meet the needs of and advocate for change within the childhood obesity population. Principles of health psychology recognize the mind-body connection, and emphasize the importance of addressing physical and mental health concerns in treating

the whole person. Inter-disciplinary approaches aimed at identifying and treating children who are obese can provide a holistic health treatment plan that involves multiple aspects of children's needs.

One of the social and emotional effects of childhood obesity includes decreased self-esteem. In our society, which is guided by ideal images of beauty, power, and worth, research shows that children's body image and eating behaviors are in fact being negatively affected by socio-cultural influences, (McCabe & Ricciardelli, 2003). Self-esteem is related to self-concept, self-efficacy, and depression. Mendelson and White (1982) found body esteem to be correlated with self-esteem and relative weight among elementary school aged children. According to the study, children as young as six years old reported feeling "sad" because they were "fat". A study released by the Division of Pediatric Gastroenterology and Nutrition through the Robert Wood Johnson School of Medicine found that self-esteem scores were not significantly different among 9 to 10 year old obese children, however amongst children aged 11-14 obese girls showed significantly decreased levels of global self-esteem compared with non-obese girls (Strauss, 1999). Mild decreases in self-esteem were also observed in obese boys compared with non-obese boys. The sample of 1,520 children included Hispanic, African American, and non-Hispanic white children aged 9 to 14 and data was stratified by race and gender. Self-Esteem was measured using the Self-Perception Profile for Children. Decreasing levels of self-esteem in obese children were associated with significantly increased rates of sadness, loneliness, and nervousness.

Early interactions within the family, community and society affect self-esteem and for children who are obese, self-esteem is often lowered due to the stigma in our

society against individuals who are obese. Studies have shown that normal-weight children express negative attitudes toward their obese peers as early as kindergarten, and that they prefer a playmate who is physically handicapped to one who is obese (Zametkin, Zoon, Klein, & Munson, 2004). Researchers from the University of Pennsylvania and Temple University examined the attendance records of fourth- through sixth-graders for one year in Philadelphia schools and found that obese children missed about 20% more school days, on average, than their normal-weight classmates. Researchers hypothesize that the reasons have to do with body image and teasing from peers (University of Pennsylvania, 2007). The link between obesity and low self-esteem hits adolescents especially hard (Zametkin, Zoon, Klein, & Munson, 2004). A study that examined childhood social networks demonstrated that normal-weight children have more close friends, while overweight children have fewer, more distant relationships. It is also likely that obese children do not participate in extracurricular activities because of physical limitations, they experience feelings of not being welcomed as members of the group, or because of their own lack of self-confidence or poor body image. The negative impact on the child's self-esteem may have significant implications for long-term happiness and success in life.

Overweight children tend to have more anxiety and poorer social skills than normal-weight children (CDC, 2009). Stress and anxiety also interfere with learning. At one extreme, these problems may lead overweight children to act out and behave disruptively in the classroom. At the other, they may cause overweight children to become socially withdrawn. Additionally, evidence shows that obesity functions as a vicious cycle for depression, a condition long associated with abnormal eating patterns

and the lack of physical activity that can worsen BMI. Furthermore, some children may overeat to cope with problems or to deal with emotions, such as stress, or to fight boredom. Additionally, personality factors such as impulsivity and compulsivity may play a role in overeating as well (Schwimmer, Burwinkle, & Varni, 2003). Finally, overweight and obese adolescents who had been teased by peers or family members were found to have increased suicidal thoughts and/or to have attempted suicide (Zametkin, Zoon, Klein, & Munson, 2004).

Obesity in childhood is a key risk factor and potential indicator for obesity in adulthood. Similarly, morbidity and mortality in the adult population is increased in individuals who were overweight in childhood and adolescence (Deckelbaum & Williams, 2001). Medical co-morbidities associated with obesity and overweight are similar in children as in the adult population. These co-morbidities include issues such as elevated blood pressure and higher prevalence of factors associated with insulin resistance and Type 2 diabetes, a chronic condition that affects the way a child's body metabolizes sugar or glucose. In some populations, Type 2 diabetes is now the dominant form of diabetes in children (Caprio et al., 2008).

Children who are obese are also at an increased risk for disorders such as asthma and other breathing problems. They may also experience sleep disorders such as sleep apnea wherein a child may snore or have abnormal breathing during sleep (Mayo Clinic, 2010). Children who are obese are more likely to have high blood pressure and high cholesterol, which are risk factors associated with cardiovascular disease (Mayo Clinic, 2010). These factors can contribute to the buildup of plaques in the arteries, causing the arteries to narrow and harden, which can lead to a heart attack or stroke later in life.

Finally, children who are obese may experience early puberty or menstruation, as obesity can cause hormonal imbalances that can cause puberty to start earlier than expected (Mayo Clinic, 2010).

Patterns related to healthy eating, physical activity, and overall weight management are established early in life and can remain enduring. For example, during their youth, obese children and adolescents are more likely to have risk factors associated with cardiovascular disease (such as aforementioned conditions of high blood pressure, high cholesterol, and Type 2 diabetes) than are other children and adolescents (Ogden, Carroll, Curtain, Lamb, & Flegal, 2010). Children who are obese are also at risk for orthopedic problems, including bowed legs, and symptoms of weight stress in the joints (Moran, 1999).

Childhood obesity also poses serious problems for a society struggling to cope with rising health care costs. The cost of treating obesity currently totals \$117 billion per year, a price according to the surgeon general, “second only to the cost of [treating] tobacco use” (Carmona, 2004). And as the number of children who suffer from obesity grows, long-term costs will only increase.

Current Responses to Childhood Obesity

Childhood obesity has been recognized as a national concern by the United States government. First lady Michelle Obama has instituted a national program “Let’s Move”, aimed at holding schools more responsible in the fight against childhood obesity. Efforts to introduce healthy school lunch menu options have also appeared in many statewide and national plans to address childhood obesity.

More than 25 million students use the National School Lunch Program (NSLP) daily, while 7 million children use the National School Breakfast Program (Carter, 2002). For some children, school breakfast and lunch programs can provide more than 50 percent of their food and nutrition on school days, particularly those from low-income families. Since children from low-SES backgrounds have a higher prevalence of obesity, getting free or discounted food through these programs has an effect on their food intake. In many schools, children are given the option of choosing high calorie, low nutrient foods and beverages. At the national level, the government has the responsibility of ensuring that foods provided to school breakfast and lunch programs, are nutritional and healthy. The reauthorization of the Child Nutrition Act in 2004, required school districts to implement local wellness policies in all schools (Department of Health and Human Services, 2009). In August 2010 a child nutrition bill, the Healthy, Hunger-Free Kids Act of 2010, was passed. This groundbreaking piece of legislation will help provide healthier school meals to children in the United States. First lady Obama hopes that the bill will “play an integral role in efforts to combat childhood obesity” (Patuwo, 2010).

National programs such as the Boys and Girls Club’s Triple Play, help children make responsible choices regarding foods and beverages. Triple Play is an after- school program that educates children about the basics of nutrition, such as reading labels and differentiating between “good” and “bad” carbohydrates. This program also motivates children to engage in physical activities such as semi-competitive play, softball, and physical fitness challenges. Finally, Triple Play demonstrates the importance of health and wellness through guest speakers, projects, and field trips.

Another national program, Nutrition Detectives, is a nutrition education program for elementary school children teaches children how to read labels, detect marketing deceptions, and how to identify and choose healthy foods (Katz, 2010). This program features interactive computer games, guest speakers, and classroom activities that integrate health and nutrition into various subjects such as math, science, and language arts. A national program specifically targeting obesity in girls is “Girls on the Run, International” (GOTR). Since girls are more at risk for obesity than boys, this program is aimed at encouraging exercise and physical activity amongst girls, while building team and leadership skills along with positive self-esteem and healthy body images. Reports on the efficacy of this program show that girls involved were less likely to experiment with drugs and alcohol, report teenage pregnancy, and drop of out school (GOTR, 2008).

In 2012, the Centers for Disease Control and Prevention launched a new effort to address childhood obesity using successful elements of both primary care and public health. The project targets children ages 2-12 years covered by the Children's Health Insurance Program (CHIP), which provides low cost health insurance to more than 7 million children from working families. Rates of childhood obesity are high overall, but for minority and low-income communities in particular, they are even higher. Using innovative approaches to reach low-income and minority families to tackle childhood obesity prevents the onset of many diseases associated with childhood obesity, including type 2 diabetes, asthma and heart disease. These innovative approaches include combining changes in preventive care at doctor visits with supportive changes in schools, child care centers, and community venues such as retail food stores and parks.

Local efforts to combat childhood obesity include programs such as Get Up Montgomery County's "5-2-1, almost none" program, which educates parents and children on healthy eating using the food pyramid as a basis for determining daily caloric allowances. The community needs assessment of the Dayton and Montgomery County also highlighted efforts on the part of school nurses who educate school-age children on reading food labels, making healthier vending machine choices, and enjoying fruits and vegetables in a variety of different ways (Warfield, Wright, & Townsend, 2010). Also the Diabetes and Obesity Wellness Opportunities Program (Do-Wop) is a community program aimed at increasing children and adolescents' knowledge about healthy eating in order to decrease their risk of developing Type 2 diabetes, targets minority populations in the Dayton community. The "5-2-1, almost none" and "Do-Wop" programs require parental involvement, a factor associated with increased efficacy of intervention strategies (AAP, 2003; Warfield, Wright, & Townsend, 2010).

Resource Guides

The American Association of Pediatrics (AAP) is a leading resource for the advancement of physical health of all children. The AAP has several initiatives dedicated to the prevention of childhood obesity. Most notably are the Bright Futures procedures as well as the Prevention and Treatment of Childhood Overweight and Obesity website. Bright Futures is a national health care promotion and disease prevention initiative that uses a developmentally based approach to address children's health care needs in the context of family and community. Its purpose is to promote and improve infant, child, and adolescent health within the context of family and community (AAP, 2011). Bright Futures provides resource tools to clinicians who work with children and families.

The AAP's Prevention and Treatment of Childhood Overweight and Obesity website provides portals for health care providers, parents, and communities. The health care provider portal includes materials that were designed to support registered dietitians and primary care providers in providing coordinated care for children and families. The site includes free downloadable resources, interactive training modules, and materials available for purchase that can be helpful to any primary care practitioners and registered dietitians who wish to provide comprehensive multidisciplinary care to patients who are overweight or obese (AAP, 2011).

The Centers for Disease Control and Prevention (CDC) is another resource for childhood obesity. The CDC provides online resources for families and professionals regarding current childhood obesity statistics, publications, and national programs (CDC, 2009). The website however, can be difficult to navigate if a person is not well versed on the jargon and statistics associated with childhood obesity.

Other childhood obesity online resource guides exist such as the Center for Childhood Obesity's website, which provides information for parents and professionals about a weight management program for children and teens (Center for Childhood Obesity, 2012). Also the United States Department of Health and Human Services (DHHS) has an online resource guide entitled WE CAN (Ways to Enhance Children's Activity and Nutrition). WE CAN provides electronic meal planners and shopping tips for parents. It also provides information on ways parents can reduce screen time for their children (DHHS, 2011).

Currently there is a plethora of information and resources for childhood obesity. However many of these resources are targeted for professionals or parents, and rarely

both. Education and resources that can be used by professionals, parents, and children can provide a more comprehensive approach to the prevention of childhood obesity.

Resource guides are one way to provide professionals and families with current information that can be used to address serious problems within the community such as childhood obesity.

The Importance of a Resource Guide

Due to the high prevalence of childhood obesity it is important that parents and professionals be armed with the knowledge of resources available to assist children and families. The purpose of this guide is to empower clinicians and families to take steps to prevent childhood obesity. This guide aims also to support professionals, families and community advocates in improving the health status of those children who are already overweight and obese.

The Childhood Obesity Resource Guide was created as another tool to increase access to care and to aid parents and families in the fight against childhood obesity as a search of the relevant literature revealed a shortage of such guides. Given the recommendations from the Dayton community childhood obesity needs assessment that reported that professionals working with children and families felt a lack of collaboration regarding efforts to address childhood obesity in the community coupled with the shortage resource guides focusing exclusively on promoting healthy living and preventing childhood obesity, the author created the Childhood Obesity Resource Guide.

This Resource guide is not intended to be exhaustive in nature, rather to promote agencies and organizations working together for a common goal. Similarly, the exclusion of a source does not reflect the quality of that source.

Chapter 3

Description of the Childhood Obesity Resource Guide

Introduction

Childhood obesity in the United States has reached nearly epidemic proportions. Recent reports from the Centers for Disease Control and Prevention report that nearly 20% of American children aged two to nineteen are obese (CDC, 2009). Efforts to address and prevent childhood obesity should be a multidisciplinary approach involving professionals as well as parents and community members.

Rationale of this Resource Guide

This guide was specifically designed because of the increased prevalence of childhood obesity and the effects of childhood obesity. In Ohio, childhood obesity rates for children from urban and rural backgrounds have increased in prevalence over the last twenty years (Oza-Frank, Scarpitti, Wapner, & Conrey, 2011). Research suggests that when children are exposed to a variety of fruits and vegetables, they likelihood that they will make healthier choices when available, increases. It is also important that parents are educated on the risks of childhood obesity as well as the benefits of healthy living. Also, with the link between physical health and mental health, psychological issues are often correlated to physical well- being. Additionally, the changing face of health care includes an appreciation for the whole person and medical settings are incorporating various disciplines working collaboratively to treat individuals.

How the Information for the Guide was Selected

Best practice models for childhood obesity interventions include a focus on teaching children about nutrition and health, incorporating fun, easy physical activities that children can gain mastery over, and educating parents about health and wellness. The Childhood Obesity Resource Guide was modeled after Bright Futures, a resource manual for clinicians who work with children and families. The information for the clinician portion was gathered from various sources including research articles and books. Information for the parent or caregiver portion was derived from various sources including national programs, local programs, school curriculum guides, and community initiatives. The information for the section focused on children was derived from online websites, articles, and the author's personal knowledge.

Purpose of this Resource Guide

This guide was developed as a resource for clinicians in a multi-disciplinary setting including physicians, registered dietitians, therapists, social workers, dentists, and case managers. It can be used as a resource tool for clinicians who primarily work with children or families to distribute to parents. It was also developed to provide advice, tips, and resources for parents regarding healthy behavior change, thus increasing access to care. Included in the Resource Guide is a glossary of terms that are commonly associated with childhood obesity. This Resource Guide also includes a Healthy Lifestyle Planner, modeled after a mental health treatment plan, to empower parents to view making healthy choices as a behavior.

How Effectiveness will be Measured

Since the Resource Guide materials are still in a pilot phase, feedback regarding the effectiveness and utilization is needed. A survey is included in Appendix B of the Childhood Obesity Resource Guide. Clinicians are encouraged to complete the survey and send it to author. Survey responses will be utilized in making changes and additions to the Resource Guide.

Factors Involved in the Maintenance of Childhood Obesity

Appendix C is a diagram adapted from the Department of Health and Human Services describing the multiple factors involved in the maintenance of childhood obesity. Clinicians and parents can benefit from a visual aid that describes the various points of influence of obesity.

Chapter 4

Prevention and Treatment Recommendations

Treatment Recommendations

There continues to be a paucity of information regarding evidence based behavioral treatment programs for childhood obesity. There are however, treatment recommendations that leading researchers agree should be integrated into successful treatment approaches (Edmunds, Water, & Elliott, 2001). The first recommendation is that early prevention is the best way to treat childhood obesity (CDC, 2010; Edmunds, Waters, & Elliott, 2001; Moran, 1999). Breastfeeding has been shown to have substantial health benefits for children, who consequently might be at reduced risk for childhood obesity (Harder, Bergmann, Kallischnigg, & Plagemann, 2005). In fact, nearly 30% of mothers do not breastfeed, and only approximately 40% of children are still breastfed at age 6 months although the recommended duration of exclusive breastfeeding is to age 4-6 months (Moran, 1999). By educating parents about the dangers of childhood obesity, discouraging overfeeding in infants and small children, and providing information regarding a healthy diet for children, childhood obesity prevalence can be significantly affected.

Childhood obesity treatment is a family, not an individual, issue therefore parents should be encouraged to include healthy lifestyle habits as a part of the family routine, rather than singling out the obese child and creating him or her special meals (Edmunds,

Waters, & Elliott, 2001). Additionally, Moran (1999) suggested that food should not be used for non-nutritive purposes such as for rewards or incentives since by doing so parents are teaching children to associate accomplishments with food.

Physicians and mental health clinicians view behavior modification as an important component in the treatment of childhood obesity. An important first step in behavior modification is education regarding nutrition, the components of a healthy diet, and an understanding of food labels (Moran, 1999). Wellness visits should be used to introduce focused discussions on obesity risk factors, to explain the meaning of body-mass index (BMI) and to plot a child's BMI over time (Caprio et al., 2008). Self-monitoring skills can also be taught to children in an effort to increase children's awareness of their eating and exercise habits.

Parents can also implement changes such as eating all meals at the dinner table, eating only at designated times, limiting the amount of fattening foods in the house, and limiting second helpings. Parents should also be advised regarding the importance of not having televisions in children's bedrooms, eating while watching television, the quality of snacks, the frequency of eating at fast food restaurants, the dangers of skipping breakfast, drinking soda versus water, and the benefits of consuming fruits and vegetables. Additionally, parents should not force the child to eat, and children should not be forced to finish entire meals (Moran, 1999).

In some circumstances, childhood obesity treatment might include medication. Although never considered the first line of treatment however, there are two medications labeled for use in weight loss in adolescents, Sibutramine and Orlistat (Caprio et al., 2008). Sibutramine, an appetite suppressant that inhibits the reuptake of norepinephrine

and serotonin, is labeled for those age 16 years and older (Berkowitz et al., 2006). In a group of severely obese adolescents, treatment with Sibutramine in conjunction with behavioral therapy resulted in a mean weight loss of 8.4 kg (18.5 pounds) after 12 months (Berkowitz et al., 2006). Side effects of this drug include increased heart rate and blood pressure. The second medication, Orlistat (Xenical), is an inhibitor of fat absorption and is labeled for use in children aged 12 years and over. The side effects of this drug include fat malabsorption. Neither of these drugs has been widely adopted because of their cost, side effects, and absence of data regarding long-term efficacy in adolescents. Another drug used for the treatment of obesity, although not labeled for that purpose, is metformin. Weight loss achieved with metformin is typically modest, and therefore its primary benefits may be for obesity-related consequences such as hyperglycemia and ovarian cysts (Caprio et al., 2008). Studies of weight loss medication in adolescents have included black and Hispanic subjects but have not been adequately evaluated for differences in effects by race or ethnicity. Weight loss medication will not replace the need for a healthy diet and exercise regimen.

Culturally Appropriate Prevention and Treatment Recommendations

Since ethnic disparities in the development of childhood obesity exist, it is important that behavioral treatments be culturally appropriate and designed to meet the needs of individual children (Edmunds, Waters, & Elliott, 2001; Bruss et al., 2005). In fact the American Diabetes Association recommends utilizing a “socio-ecological” framework to guide the prevention and treatment of childhood obesity (Caprio et al., 2008). The socio-ecological model focuses on interactions between a person's physical, social, and cultural surroundings, and views children in the context of their families,

communities, and cultures. The relationships amongst biological, behavioral, and environmental determinants of health are identified. Many cultures place values on food consumption that go beyond nutritional gain. For example, in one focus group study of the multiethnic, indigenous people of the Northern Mariana Islands, individuals indicated that sociocultural and familial messages were most influential to their health care behavior patterns (Bruss et al., 2005). This pattern is seen in the values, attitudes, and beliefs amongst other groups of diverse ethnic minority populations. In the African American, Appalachian, and Latino communities, food has historically had the purpose of communicating care and appreciation rather than only serving a nutritional role. Having an understanding of the messages associated with child feeding practices in various cultural groups is critical to beginning to implement change. The racial/ethnic and sex differences in the perception of body type related to obesity may influence the motivation for treatment. Motivational interviewing, a technique which addresses risks and benefits to change, can be used to engage families as well as understand barriers to change (Caprio et al., 2008).

Future Directions

Despite the recognition of the severe health and psychosocial damage done by childhood obesity, it remains low on the public agenda of important issues facing policy makers (Hill & Trowbridge, 1998). Perhaps this is because the most serious health effects of obesity in today's children will not be seen for several decades. As the prevalence rates of childhood obesity continue to rise, it is important to continue to focus research attention to the prevention and treatment of this condition. One way to educate children and families in the new millennium about the effects of obesity is through a medium most

families in America are familiar with – the internet. Online resources will be a growing addition to the childhood obesity prevention and treatment efforts. Additionally, research should focus on the inclusion of younger and older age ranges so that prevention is being targeted in early childhood as well as late adolescence. Including pregnant mothers and pre-natal information in prevention measures will also be an important component to future treatment efforts.

Also, community leaders of youth programs, religious groups, and community outreach centers could disseminate the childhood obesity resource guide in the future. Organizations that work with families, such as YWCA, and Child Protective Services, could also utilize this resource guide as a prevention tool. Finally, more grants and research dollars should be allocated to the creation of healthy marketplaces and neighborhoods. Once such grant, On the Road to Fruits and Vegetables grant through Job and Family Services, is an example of how re-vitalizing neighborhoods can impact obesity on all levels.

Readiness for change should be assessed prior to the implementation of any behavioral treatment approach. For parents who are resistant to change, utilizing methods from motivational interviewing can help acknowledge barriers to change and the cost and benefits of change. In extreme cases, child protective services may have to be involved when dealing with parents who refuse to engage in any efforts to improve their child's health.

Finally, in preparation for the publication and dissemination of this document, have various disciplines including medicine, nutrition, and sports medicine will critically review your resource guide in order to provide recommendations and critiques.

Relapse Prevention

Because of the value placed on physical appearance and the common belief that obesity results from laziness or lack of willpower, overweight children and their families often feel embarrassed and ashamed (Barlow & Dietz, 1998). Clinicians who care for these families must treat them with sensitivity, compassion, and a conviction that obesity is an important, chronic medical problem that can be treated. For example, when asking questions about the types and amount of foods eaten should be framed in objective language. The clinician can create an alliance with the family by focusing questions on behaviors rather than on the characteristics of the child or family.

In order to contribute to long-term weight maintenance, interventions should modify eating and exercise behaviors such that new, healthier behaviors develop and replace unhealthy behaviors, thereby allowing healthier behaviors to persist throughout development and into adulthood (Epstein, Myers, Raynor, & Saelens, 1998). Teaching children to identify “high-risk” situations that might trigger overeating, as well as teaching coping strategies is a key component of relapse prevention. Leaders in the field of addictive behaviors, of which obesity is included, include Brownell, Marlatt, Lichtenstein, and Wilson. These authors highlight the difference between lapse and relapse, with lapse referring to the process, such as an occasional slip or mistake that may or may not lead to an outcome, or relapse. Planning for relapses of overeating, inactivity, and unhealthy food choices for children, as well as predicting common pitfalls in maintaining changed behaviors, can empower and encourage families to slowly make better choices whenever possible.

Summary

Childhood Obesity is a serious problem affecting American families. All the aforementioned risk factors including race, gender, parental lifestyle, and socioeconomic status make childhood obesity a complex societal problem. Children who are obese are at risk for medical, psychological, and learning problems. Additionally, families, communities, schools, and society contribute to increasing prevalence of this issue. These factors work in tandem in the maintenance of obesity in children. If the problem of childhood obesity is not addressed systemically and within multiple disciplines, the risk remains that the problem will continue to expand into the next generation. Understanding the causes of childhood obesity can provide the opportunity to focus research, interventions, and resources.

The preventable nature of childhood obesity makes it an ideal target for prevention efforts. Parental involvement is especially important in the prevention and treatment of childhood obesity. Parents not only model and encourage behavior regarding physical activity and portion control, but they are generally primarily responsible for the purchase and preparation of foods within the household. A Resource Guide with information about national and local programs, nutrition tips, and activities for children can help in the fight against childhood obesity. With the help of clinicians, parents can introduce healthy behaviors within children and families.

Appendix A
Resource Guide

**A RESOURCE GUIDE
FOR CHILDHOOD OBESITY**



For Parents of Children AGES 8-11

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OVERVIEW OF THIS GUIDE

The Childhood Obesity Resource Guide was developed as a resource for clinicians of multiple disciplines including physicians, registered dietitians, therapists, social workers, dentists, and case managers. It can be used as a resource tool to be distributed by clinicians who primarily work with children or families. The Childhood Obesity Resource Guide was also developed to provide advice, tips, and resources for parents regarding healthy behavior change, thus increasing access to care. Included in the Resource Guide is a glossary of terms that are commonly associated with childhood obesity. This Resource Guide also includes a Healthy Lifestyle Planner to empower parents to view making healthy choices as a behavior.

- This guide is targeted for children ages 8-11.
- The term “parent” throughout this guide includes guardians and caregivers and extended family members who may also be involved in the care of the child.
- The information for the clinician portion was gathered from various sources including online research, articles, and books. Materials and activities listed in the resource guide have been developed from other professional disciplines including nutrition and pediatrics. Please consult a physician or nutritionist before implementing the exercises or recipes in this guide.
- Information for the parent or caregiver portion was derived from various sources including national and local programs, school curriculum guides, and community initiatives.
- The information for the section focused on children was derived from online websites, articles, and the author’s personal knowledge.

A NOTE TO PROFESSIONALS

Childhood obesity has reached nearly epidemic proportions in the United States. Recent estimates report that nearly 20 % of American children ages 2-19 are obese (CDC, 2009). Clinicians can take steps to educate parents and children about the benefits of healthy living.

All professionals working with children including physicians, mental health clinicians, registered dietitians, dentists, and educators can distribute this guide. This guide is intended to serve as a resource tool for clinicians, parents, and children. Please take a few minutes to review this guide with patients before distributing it.

Listed below are some tips adapted from the American Association of Pediatrics that should serve as a general guide to assist you in understanding the nature and needs of children who are obese.

- Assess all children for obesity at well care visits.
- Using more neutral terms such as *weight*, *excess weight*, *body mass index*, *BMI*, or *risk for diabetes and heart disease* can reduce the risk of stigmatization.
- Give consistent, evidence-based messages for all children, regardless of weight.
- Children may not talk about how their weight is affecting them. Be sensitive to and aware of potential issues they may face or be facing.
- Perform a bio/psycho/social assessment for attitudes and behaviors regarding weight, nutrition, and health. Also work with parents to implement behavior change and lifestyle changes within families. Help parents teach their children healthy eating habits. Many parents have little understanding of the link between diet and disease.
- Encourage parents and children about the positive effects of a healthy lifestyle. Focus on benefits to good health instead of risks of poor health.
- Talk to parents about the various influences on childhood obesity such as genetics, society, environment, and parenting style. A visual guide can be found at the back of the guide.

An Effectiveness Survey can be found at the end of the Resource Guide. Please take a moment to complete the survey and provide any feedback to the author.

PROMOTING NUTRITIONAL HEALTH


“Our children's health and well-being are dependent on our commitment to promoting food access and good eating habits at home, at school and in the community”.

-Rod Blagojevich

- Parents and other family members continue to have the most influence on children’s eating behaviors and attitudes toward foods. Parents need to make sure that nutritious foods are available and decide when to serve them; however, children should decide how much to eat. During this period, when children may be missing several teeth, it can be difficult for them to chew certain foods (i.e. meat). Offering foods that are easy to eat can alleviate this problem.
- Teach parents that in order to achieve optimal growth and development, children in middle childhood need a variety of nutritious foods that provide sufficient calories, protein, carbohydrates, fat, vitamins, and minerals.
- By middle childhood, a child needs 3 meals and 2 to 3 healthy snacks per day. As the child’s ability to feed himself improves, he can help with meal planning and food preparation, and he can perform tasks related to mealtime.
- Health care professionals should try to determine whether families have access to, and can afford, nutritious foods. They also should discuss families’ perceptions of which foods are nutritious and their cultural beliefs about foods.
- The USDA MyPyramid for Kids, which is based on the Dietary Guidelines for Americans, provides an easy reference on food intake and physical activity recommendations for children aged 6 to 11 years.





Adapted from the American Association of Pediatrics Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents (AAP, 2011)

PRESCRIPTION FOR HEALTHY ACTIVE LIVING

 **for Healthy Active Living**

Name _____ Date _____

Ideas for Living a Healthy Active Life

-  Eat at least 5 fruits and vegetables every day.
-  Limit screen time (for example, TV, video games, computer) to 2 hours or less per day.
-  Get 1 hour or more of physical activity every day.
-  Drink fewer sugar-sweetened drinks. Try water and low-fat milk instead.


My Goals (choose one you would like to work on first)

<input type="checkbox"/> Eat _____ fruits and vegetables each day.	<input type="checkbox"/> Get _____ minutes of physical activity each day.
<input type="checkbox"/> Reduce screen time to _____ minutes per day.	<input type="checkbox"/> Reduce number of sugared drinks to _____ per day.

Patient or Parent/Guardian signature _____

Doctor signature _____

From Your Doctor

American Academy of Pediatrics  **Healthy Active Living**
DEDICATED TO THE HEALTH OF ALL CHILDREN™ An Initiative of the American Academy of Pediatrics

Healthy lifestyle choices now can decrease the risk for future health conditions including diabetes, heart disease, and high blood pressure.

Use this paper to write a “prescription” for healthy, active living.

Exercise Versus Physical Activity

Help families understand the difference between exercise and activity. Exercise is a type of physical activity that some people enjoy doing. Exercise is planned, structured and done to improve at least one aspect of physical fitness that is, strength, flexibility or aerobic endurance.

Exercise can be either **low impact** or **high impact**. Low impact exercise involves at least one of your feet remaining in contact with the ground at all times (ex: walking, hiking, rollerblading). High impact exercise involves both feet leaving the ground at the same time (ex: running, jumping, etc.)

Physical Activity is activity that is part of your daily life. Household, workplace and lifestyle physical activity are three of the most common types of physical activity.

Some exercises that children/youth can engage in include:

*Walking, Biking, Dancing, Zumba, Bowling,
Skating, Yoga, Jump Roping, and Skipping!*

*Please note this is not an actual prescription and should not be used for anything other than patient education. Use in conjunction with a physician or pediatrician.

Reproduced from the American Academy of Pediatrics Bright Futures materials.

Nutrition for Children with Special Health Care Needs

Children with Special health care needs often have special dietary needs that extend into the school environment (Gerdes, Mogannam, & Jones, 2011). Dietary needs of children with special health care concerns that can affect their ability to maintain a healthy weight should be addressed with the family.

Health care professionals should be aware of medications that can affect appetite, leading to weight loss or weight gain. The children may be making food choices at school, and parents may need help guiding them to make healthy choices, depending on their particular needs.

Legally, a diet order must be in file in order for the school to maintain medical safety. Working with parents and school districts to ensure that children with special health care needs get the care they need is essential.

Children with special health care needs can have significant nutritional challenges, leading to underweight or overweight. These challenges can be the result of behavioral disturbances or because children may need assistance with feeding.

When weight gain is desired, nutritious high-calorie foods are preferred over calorie-dense “junk food.” Some children may even require gastrostomy tubes.

Overweight and obesity are risks when physical activity is limited by a special health care need.

Health care professionals should be aware of these challenges and be prepared to seek assistance in monitoring and facilitating appropriate nutrition.

Sometimes the school and the healthcare provider can impede communication due to privacy issues related to HIPPA (on the part of the healthcare provider) and FERPA (on the part of the school). Obtaining a signed release can be facilitated easily through mail or fax.

Remember that it takes a team of people to provide comprehensive care.



CULTURAL CONSIDERATIONS



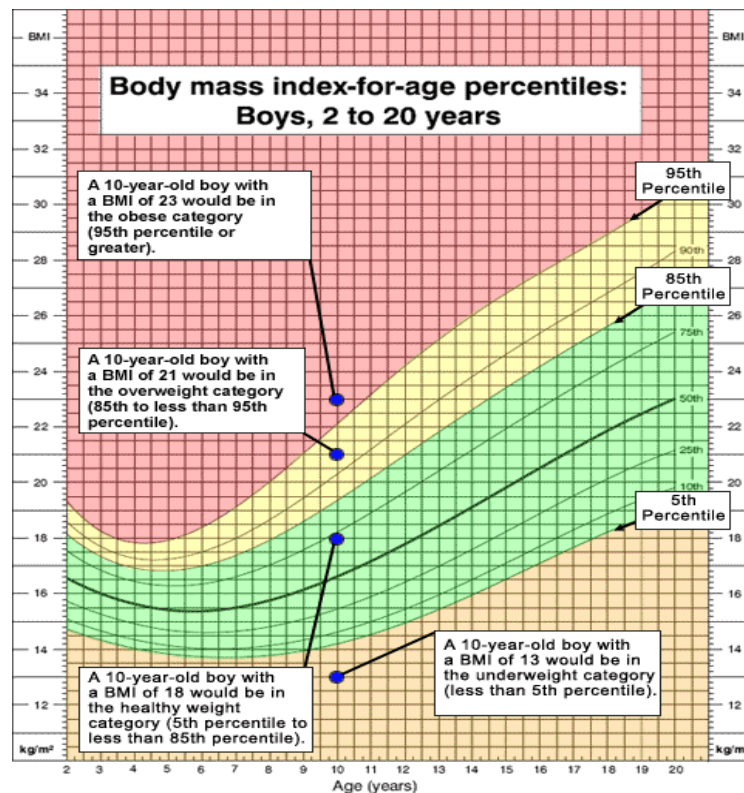
Childhood Obesity affects all races and socioeconomic statuses however there are certain groups that are more at risk.

- Hispanic and African – American girls are at an increased risk for being obese. Permissive standards of beauty coupled with cultural norms may be a factor.
 - o Interventions geared toward African-American girls should perhaps focus on explanation of health benefits as opposed to body image benefits.
- Also, low SES children are often not exposed to healthy food selection options.
 - o Beware of middle class bias in assumption of “normal” meals.
- Boys may not appear to be effected by body image and size, but encourage parents to actively listen to their children, inquire about bullying and body image issues, and reinforce that everyone has a right to be safe not matter what size they are.

What Parents Should Know About Childhood Obesity

WHAT IS CHILDHOOD OBESITY?

- Childhood obesity is a condition that affects children of all ages, races, and gender. It often results when children intake too many calories, but do not expend as many on a daily basis to promote a healthy weight.
- Children become overweight and obese as the result of many different variables including genetics, family, and unhealthy eating patterns.
- A physician can determine if a child is overweight or obese using a BMI for age percentile chart like the one below.



BODY MASS INDEX

What is Body Mass Index (BMI)?

Body Mass Index (BMI) is a number calculated from a child's weight and height. BMI is a pretty reliable indicator of body fatness for most children and teens. BMI can be considered an alternative for direct measures of body fat. Additionally, BMI is an inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems such as obesity (CDC, 2009).

For children and teens, BMI is age- and sex-specific and is often referred to as BMI-for-age.

BMI-for-age weight status categories and the corresponding percentiles are shown in the following table.

Weight Status Category	Percentile Range
Underweight	Less than the 5th percentile
Healthy weight	5th percentile to less than the 85th percentile
Overweight	85th to less than the 95th percentile
Obese	Equal to or greater than the 95th percentile

How is BMI used with children and teens?

BMI is used as a screening tool to identify possible weight problems for children. CDC and the American Academy of Pediatrics (AAP) recommend the use of BMI to screen for overweight and obesity in children beginning at 2 years old.

For children, BMI is used to screen for obesity, overweight, healthy weight, or underweight. However, BMI is not a diagnostic tool. For example, a child may have a high BMI for age and sex, but to determine if excess fat is a problem, a health care provider would need to perform further tests (CDC, 2009).

HOW DOES CHILDHOOD OBESITY AFFECT CHILDREN?

Childhood obesity can effect children medically and psychologically.

- Medically, obese children are at an increased risk for Type II diabetes, a serious condition that involves a person's ability to process glucose in the blood stream.
- Obese children are also at risk for heart disease, breathing related illnesses, and high blood pressure. These medical conditions can be life altering and irreversible.
- Emotionally, obese children are often the victim of teasing and bullying. Children who are obese are more likely to experience depression, loneliness, and isolation. Since being the victim of bullying can lead to anxiety as well, childhood obesity can affect the way a child performs in school.
- Kids who are unhappy with their weight may be more likely than average-weight kids to develop unhealthy dieting habits and eating disorders, such as anorexia nervosa and bulimia. They are also more likely to be more prone to depression and be at risk for substance abuse.



TEACHING CHILDREN ABOUT NUTRITION



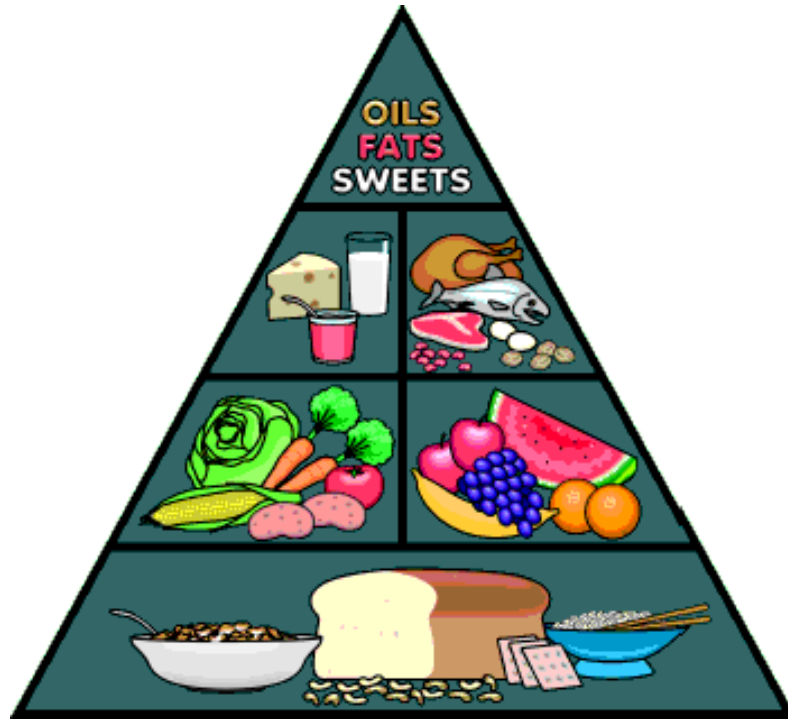
- ❖ Early Childhood and School Age children are often easily influenced by media and advertising. Talk to them about the purpose of advertising (to sell a product), which can be very different from the purpose of nutrition and good health.
- ❖ Encourage children to read nutritional labels and choose salad bar options in the cafeteria (when possible).

	% Daily Value*
Total Fat 12g	18%
Saturated Fat 3g	15%
<i>Trans</i> Fat 3g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%

- ❖ Children want to be responsible for choosing their own snacks. Teach children what to look for on food labels before choosing them.
- ❖ Teach kids that snacks have different nutritional values. For example a sweet snack such as fresh fruit or raisins carries more nutritional value than a candy bar. Nutritious salty snacks such as peanuts or pretzels carry a greater nutritional value than potato chips. Eating healthier snacks will also give kids energy that lasts longer!
- ❖ Make physical activity and healthy eating fun for children by implementing healthy eating challenges at home!
- ❖ Watch programming that promotes healthy eating and physical activity.
- ❖ Set an example by charting your daily food intake. Look for areas of improvement such as increasing vegetable and fruit intake.
- ❖ Many foods now have lower sodium or reduced calorie options that taste similar to their full sodium/full calorie counterparts. Be careful to read the label regarding serving sizes though!
- ❖ Portion size is a major culprit. Studies show that portions allotted for foods popular among children and teens, such as salty snacks, soft drinks, french fries and hamburgers—have risen significantly in fast-food and conventional restaurants and even at home!

The Food Pyramid

- The Food Pyramid discusses the basic food groups and the recommended daily amounts of each group.
- Foods found at the bottom of the pyramid are allowed more liberally whereas foods near the top of the pyramid should be eating more sparingly.
- The food pyramid is important for teaching children about portion size and nutrition.

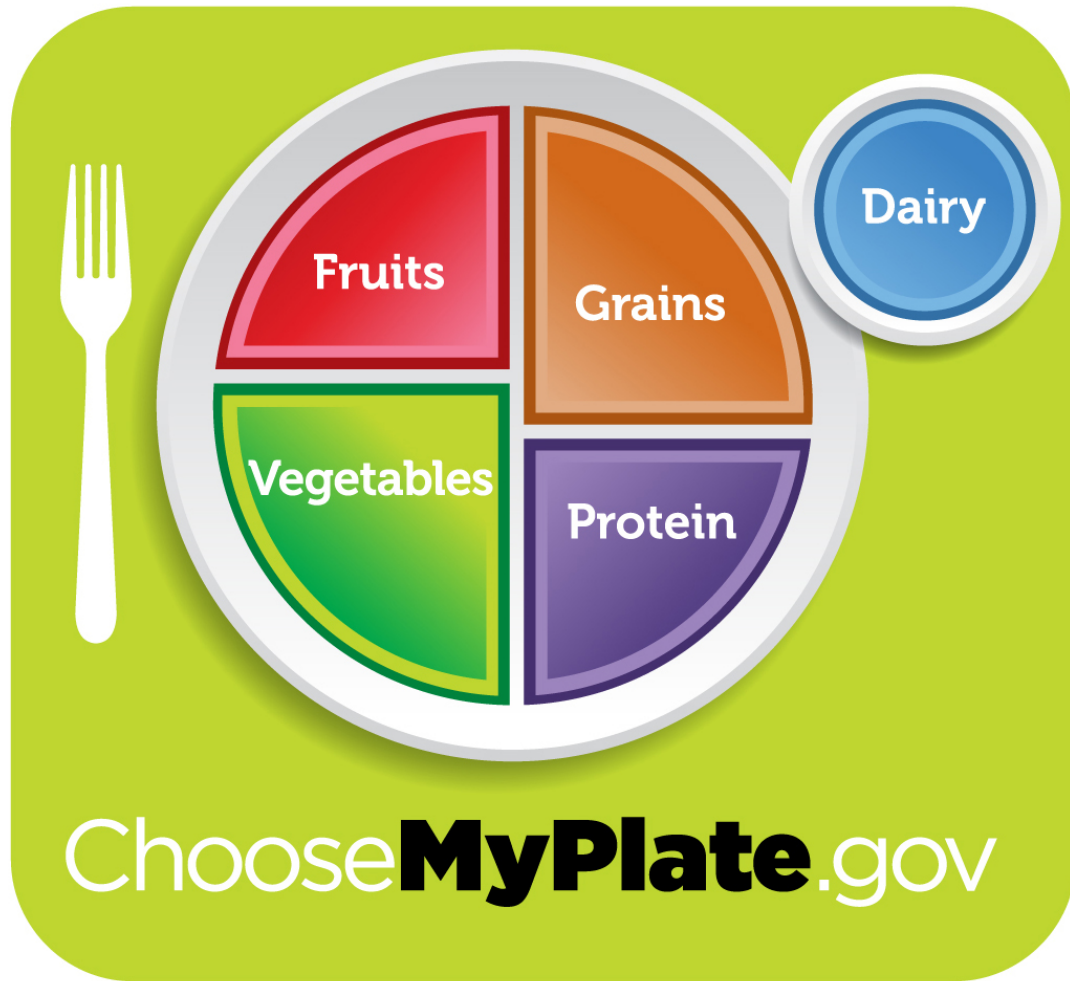


The Centers for Disease Control and Prevention (2009) recommend the following:

- Educate parents and children on childhood obesity and its risk factors.
- Discuss the relationship between physical and mental health.

- Encourage physical activity in children.
- Encourage parents to be good role models for their child. If your child sees you enjoying healthy foods and physical activity, he or she is more likely to do the same now and for the rest of his or her life.
- Parents prepare meals at home.
- Limit the amount of time children spend watching television, playing video games and computer games. Instead suggest that families engage in board games or interactive video games that require physical movement.
- Incorporate fruits and vegetables in meal planning. Perhaps have parent and child work on a menu together in session.
- Encourage non-dietary incentives for behavior change such as toys or activities.
- Predict that change will be slow. Motivational interviewing is a therapeutic approach that may help you when encountering resistance. Motivational interviewing cautions the family not to force change too quickly. This technique allows families to express their own reasons—both for and against—changing their behavior.
- Support the implementation of changes by checking in with parent(s) and child.

The Food Plate



What should your child's plate look like at mealtime?

Your child's plate should look like Myplate, which has four colored sections representing fruits, vegetables, grains and proteins. Next to the plate is a smaller circle representing dairy products.

If their dinner plate matches up with the four quadrants and one circle, then you'll have a great start to a balanced and nutrient-filled meal!

HOW TO READ A NUTRITION LABEL!

Serving Size

Start your label reading adventure by looking at the "serving size" printed right under "nutrition facts." Portion control is an important part of weight management, but don't expect food manufacturers to make it easy for you. Pop-Tarts, for instance, come two to a package. The label says one serving is 200 calories. The catch is that's for "one pastry."

Calories and Calories From Fat

Next you'll see how many calories are in a serving and how many of those calories come from fat. A 2-ounce serving of tuna has 60 calories, 5 of which come from fat. If you eat the whole can, multiply these amounts by 2.5 for a total of 150 calories and 12.5 fat grams.

Ingredients

Ingredients are listed in order from the greatest amount to the least. Just how much of a "fruit breakfast bar" is fruit? Leave the product on the shelf if the terms "enriched wheat flour" or "sugar" appear before "fruit." Also use this rule of thumb: the fewer the ingredients, the better. If there's a long list of scary ingredients you can't pronounce, you might want to put it back. Some labels also show you the total recommended daily allowances of nutrients for a 2,000-calorie diet.

Tips

Here's a label-reading shortcut.

First, ignore the "sell" on the front. Go straight to the back and look at %DV. This value represents the Daily Value percentage. According to the FDA, you should look for nutrients you want, such as fiber, to represent 20%DV or more, and nutrients you should limit, such as fat, to represent 5% or less.

Next look at serving size. If you'll eat twice that amount, then double the %DV numbers, or if you'll eat half the amount, then halve the %DV numbers. Remember that DV is based on 2,000 calories a day.

The American Heart Association recommends between the ages of 9 and 13, boys should consume approximately 1,800 calories per day, while girls should consume just 1,600 calories.

Fast Food Restaurant Nutrition Facts



Let's face it fast food is a part of the American lifestyle. You can however, choose menu items that contain some nutritional value.

The following pages contain nutrition information from some of the most popular fast food restaurants. As you browse the charts, keep in mind what the USDA recommended portion sizes are for kids and adults.

Take these charts with you when the next time you stop to grab a quick bite and let the information help guide which foods you choose for you and your children!

McDonald's Nutrition Facts



Item	Serving Size	Calories	Cal. from Fat (g)	Total Fat (g)	Saturated Fat (g)	Cholesterol (mg)	Sodium (mg)
Big Mac	7.8 oz (219 g)	560	270	30	10	80	1010
Big N Tasty (w/cheese)	8.7 oz (247 g)	570	290	33	11	90	960
Cheeseburger	4.2 oz (119 g)	310	110	12	6	40	740
Chicken McGrill	7.5 oz (213 g)	400	140	16	3	70	1010
Crispy Chicken	7.7 oz (219 g)	500	210	234	4	50	1090
Double Cheeseburger	6.1 Oz (173 g)	460	210	23	11	80	1140
Double Quarter pounder (w/cheese)	9.9 oz (280 g)	730	360	40	19	160	1330
Filet 'o Fish	5 oz (141 g)	400	160	18	4	40	640
Hamburger	3.7 oz (105 g)	260	80	9	3	30	530
McChicken	5.2 oz (147 g)	420	200	22	4	45	760
Quarter Pounder(w/cheese)	7 oz (199 g)	510	220	25	12	95	1150
Small French fries	2.5 oz (71 g)	230	100	11	1.5	0	160
Large French fries	5.4 oz (154 g)	500	220	25	3.5	0	350
Side Salad	3.1 oz (87 g)	20	0	0	0	0	10
Apple Slices	1.2 oz (34 g)	15	0	0	0	0	0
Fruit N Yogurt Parfait	5.3 oz (149 g)	160	20	2	1	5	5

Additional nutrition information can be obtained from <http://nutrition.mcdonalds.com/getnutrition/nutritionfacts.pdf>



Burger King Nutrition Facts

Item	Serving Size	Calories	Cal. from Fat (g)	Total Fat (g)	Saturated Fat (g)	Cholesterol (mg)	Sodium (mg)
Bacon Cheeseburger	149 g	430	210	23	10	70	900
Big King Sandwich	218 g	640	380	42	18	124	980
BK Big Fish	263 g	710	340	38	14	50	1200
BK Broiler	258 g	550	230	25	5	105	1110
Cheeseburger	141 g	380	170	19	9	60	760
Chicken Sandwich	224 g	660	350	39	8	70	1330
Double Bacon Cheeseburger	215 g	640	350	39	19	130	1180
Double Cheeseburger	207 g	600	320	36	18	120	1030
Double Whopper	353 g	920	510	57	20	150	980
Whopper Jr. (w/cheese)	171 g	470	250	28	11	65	770
Whopper (w/cheese)	303 g	780	420	47	17	105	1380
Small French fries	74 g	230	100	11	4	0	510
Large French fries	170 g	540	230	25	7	0	1080
Medium onion rings	94 g	330	140	16	4	2	470

Additional nutrition facts can be obtained from www.bk.com/cms/en/us/menu-nutrition



Wendy's Nutrition Facts

Item	Serving Size	Calories	Cal. from Fat (g)	Total Fat (g)	Saturated Fat (g)	Cholesterol (mg)	Sodium (mg)
Big Bacon Classic Hamburger	282 g	580	280	31	12	95	1500
Breaded chicken sandwich	208 g	440	160	18	4	60	840
Chicken Caesar pita	237 g	480	170	19	5	60	1180
Chicken club sandwich	216 g	480	190	21	5	65	1000
Classic Greek pita	234 g	440	180	20	8	25	1060
Grilled chicken sandwich	189 g	300	70	8	2	55	730
Jr. Bacon cheeseburger	166g	390	180	20	8	55	870
Jr. Cheeseburger Deluxe	180 g	360	150	17	6	50	890
Dave's Hot N Juicy Single	250 g	580	290	33	14	105	1240
Medium Natural Cut French fries	142 g	420	180	21	4	0	460
Medium original chocolate Frosty	298 g	420	100	11	7	45	190

Additional nutrition information can be obtained from www.wendys.com/food/Nutrition



Taco Bell Nutrition Facts

Item	Serving Size	Calories	Cal. from Fat (g)	Total Fat (g)	Saturated Fat (g)	Cholesterol (mg)	Sodium
Double Decker taco	5.75 oz	330	135	15	5	30	740
Double Decker taco supreme	7 oz	380	162	18	7	40	760
Grilled chicken soft taco	4.5 oz	200	60	7	3	35	540
Soft taco	3.5 oz	220	90	10	3	25	1020
Hard shell taco	2.75 oz	170	90	10	5	25	580
Taco supreme	4 oz	210	120	14	6	40	350
Beefy 5 layer burrito	5.4 oz	550	200	22	8	68	1270
Cinnamon twists	3.4 oz	170	60	7	0	0	200

Additional nutrition information can be obtained from www.tacobell.com/nutrition/information

BE MINDFUL ABOUT WHAT YOU EAT!

Mindful eating promotes awareness of what a child eats everyday. It gives the child an idea of how **healthy** this piece of food is for his/her body, or what this food can do if he/she consumes too much of it. Here are some tips to help encourage your children to eat mindfully while making the whole process a great learning experience for them:

- **Accept the fact that there is no such thing as the “right way to eat”.** Every child is different in their own way, and that includes their eating habits and food preferences. What you can do is to encourage your children to explore different kinds of foods and let them know what they do for their bodies.
- **Talk about the basic details of the food your child eats.** Whether it is food that’s familiar or food that’s new to your child, you can make every dish a learning experience by explaining basic details about it. You can talk about its nutritional value, ways you can cook it, and much more. Just make sure not to turn it into a lecture over the dinner table.
- **Let your kids explore new kinds of food.** Encourage them to try different flavors and tastes to get them to be open-minded to eating foods of different groups. Doing so will also teach them to welcome healthy and nutritious foods much more than junk food.
- **Remind your kids about the importance of “mealtime”.** Mindful eating involves being deeply connected with the eating process.

For more tips visit http://www.superkidsnutrition.com/nutrition_answers/pr_10-mindful-eating-tips.php

More Tips for Parents

- ❖ **Play active indoor games.** Put the remote away and organize some active indoor games. You can play hide-and-seek, or Simon Says (think jumping jacks and stretches).
- ❖ **Learn what a regular portion size looks like.** Limit portions to the size of your fist.
- ❖ **Get outside with your child.** Take a walk together, bike around the neighborhood, explore a local park, visit a playground, or play in the yard.
- ❖ **Downsize orders.** When eating out, share an entrée with your child or order an appetizer instead. Order half-orders or a medium size instead of a large.
- ❖ **Do chores together.** Perhaps it's not your child's first choice, but doing household chores is a very effective way to get exercise. Mopping, sweeping, taking out trash, dusting or vacuuming burns a surprising number of calories.
- ❖ **Use smaller dishes.** Portions will look bigger and you'll eat less when you use small bowls or plates.
- ❖ **Enroll children in after school sports or other activities.** If your budget allows, sign children up to play a sport or get involved in an activity where they are physically active. The local YMCA, YWCA, or Boys' and Girls' Club are safe places for children to exercise and play.
- ❖ **Dish up in the kitchen.** To minimize the temptation of second and third helpings, serve food on individual plates, instead of putting the serving dishes on the table.
- ❖ **Sign up for a 5 or 10K "race" with your child.** Find a kid-friendly walk/run "race" in your area and tell your child you'll be "training" for it together. Celebrate when you accomplish this.

Look for Signs of Depression

The National Institute of Mental Health indicates that 1 in 4 cases of obesity is accompanied by a mood disorder (Brooks, 2010). Depression can look very different in children than it does in adults. The following is a list of depression symptoms that you might notice in your child (Lacerva, 1996).

- ❖ Down mood most of the time
- ❖ Energy decrease, fatigue, and a slowed-down feeling
- ❖ Pleasurable activities are no longer enjoyed
- ❖ Remembering, concentrating, and decision- making are more difficult
- ❖ Eating problems
- ❖ Sleep problems
- ❖ Sense of hopelessness, worthlessness, and guilt
- ❖ Ever recurrent aches and pains that do not respond to treatment
- ❖ Death thoughts, or a suicide plan

The presence of four or more of these symptoms persisting for more than two weeks, is an indication that additional help or counseling is needed.

Resource Numbers:

Crisis Care – 937-224-4646

Suicide prevention Hotline – 937-297-4777

Children Services – 937- 224-5437

DayMont West Behavioral Healthcare – 937- 222-8111

Good Samaritan Crisis Care and Counseling Center – 937- 276- 8333

Ellis Institute General Practice Community Clinic – 937- 775-4300

Helping Your Children Help Themselves:

The Childhood Obesity Healthy Lifestyle Planner

What is a Healthy Lifestyle Plan? A healthy lifestyle plan is much like a document used in health care settings called a treatment plan. It is a document that outlines progression towards change.

What does it contain? A healthy lifestyle plan generally consists of four parts: a description of the main issue, the overall goal, a short list of methods that will be used to achieve the goal and a time frame that the goal will be achieved by.

Who makes it? Children should always be involved in the creation of a healthy lifestyle plan although the parent and or clinician can complete the documentation.

How do I use it? A parent and clinician can collaboratively use this area to create goals and objectives, chart the child's behavior change, and monitor progress. Another option is that a parent and child can work together to create and implement this plan within their family.

Does it really work? There have been tons of research articles and books written on the importance of parents and children working together to make healthier choices. A healthy lifestyle plan allows clients to take some accountability for their treatment. Creating a healthy lifestyle plan to counter childhood obesity can result in positive behavior changes that will affect your child for years to come!

HEALTHY LIFESTYLE PLANNER

Main problem/issue:

Ex: Julian does not eat enough vegetables consistently.

Goal 1: Ex: Julian will eat one vegetable everyday for two weeks.

Target date: _____

Ex: Two weeks from today

(Parent) I plan to assist in implementing this goal by:

Ex: I will buy more carrots, peas, and green beans, which are vegetables that Julian enjoys. I will also buy mixed vegetables including broccoli and cauliflower to see if Julian likes them.

Advice: (optional)

Ex: Remember that long lasting change usually occurs slowly. Incorporate the vegetables Julian already enjoys with some new ones. Praise any time Julian tries the new vegetables as well as when he eats the ones he already enjoys. Make sure you are eating healthy as well since you serve as a model for your child and further promote the buy-in of trying new things. Finally, anticipate some difficulty in getting Julian to eat a vegetable everyday since he is only used to eating them once or twice a week.

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NUTRITIOUS FAMILY RECIPES

Children of all ages benefit from cooking activities, which teach measurement, encourage children to explore their senses and entice them to try new foods. Cooking is a beneficial skill, teaching about different types of ingredients and healthy eating. By educating children about cooking and introducing them to fun and tasty recipes, they will make better eating decisions and take pride in cooking their own food!



Note to parents/caregivers: Before making major dietary changes, remember to consult your physician or registered dietician. Some children have special dietary needs that must be monitored under the supervision of a professional. The next few pages contain recipes that were derived from a database of healthy recipes. They have not, however, been approved by a dietician or nutritionist.

NUTRITIOUS FAMILY RECIPES

FISH IN A POND



What you need:

1/2 cup low-fat cream cheese or cheese spread
Fish-shaped crackers
4 celery ribs, stems removed

Directions:

Scoop the cream cheese into a bowl. (You can tint the cream cheese with blue food coloring to make it look like a pond.)

Place the goldfish in a separate bowl, or surround the "pond" with them.

Let the kids dip the celery sticks into the cheese, then into the bowl of crackers to "catch" a fish.

Serves 2.

For more recipes visit: <http://familyfun.go.com/recipes/cooking-with-kids/serious-about-snacks>

NUTRITIOUS FAMILY RECIPES

GOOFY WALDORF SALAD



What you need:

1 cup grated carrots
1 cup chopped celery
1 cup chopped apple
1/2 cup chopped walnuts
1/2 cup raisins
2 to 3 tbsp. mayonnaise
1 tsp. lemon juice
4 ice cream cones

Directions:

In a large mixing bowl, stir all ingredients well.

Scoop into ice cream cones. Serves 4.

For more recipes visit: <http://familyfun.go.com/recipes/cooking-with-kids/serious-about-snacks>

NUTRITIOUS FAMILY RECIPES

SHRUNKEN SANDWICHES



What you need:

2 slices ham
2 slices low-fat cheese
12 mini crackers, such as Ritz Bits

Directions:

Cut ham and cheese (six from each slice) into small rounds the size of the mini crackers. (A clean medicine bottle makes a good cutter).

Place a ham round on six of the crackers, then add the cheese.

Cover each with another cracker. Serves 2.

For more recipes visit: <http://familyfun.go.com/recipes/cooking-with-kids/serious-about-snacks>

NUTRITIOUS FAMILY RECIPES

CANDY CARROT COINS



What you need:

- 1 pound carrots
- 1 tablespoon butter
- 2 tablespoons brown sugar
- 1 teaspoon water

Directions:

Peel the carrots, then slice each one into rounds.

Place the carrot coins in a microwave-safe bowl, cover them with water, and cover the bowl with plastic wrap.

Microwave for 6 to 7 minutes or until the carrots are tender but not mushy.

Drain the water and set the carrots aside.

In a small frying pan, melt the butter, stir in the brown sugar and water, and cook for 1 minute.

Add the carrot coins and toss to coat with the brown sugar mixture.

Cook on low for 3 to 4 minutes or until the carrots are thoroughly glazed.

For more recipes visit: <http://familyfun.go.com/recipes/appetizers-snacks/healthy-snacks>

ACTIVITIES FOR KIDS



WARNING:

You are about to enter a fun zone where you can learn all about nutrition, health, and what your body needs to you looking and feeling good!

ARE YOU READY, SET, LET'S GO!

KIDS!

Nutrition Word Scramble



Directions: Unscramble the words in bold for a fun fact!

Not only monkeys should eat

A B N S N A A

Kids should too because they are

N T U I R O S T I U

A healthy snack

S K A N C

That's easy to make is a banana and

N P A E T U T U B R T E

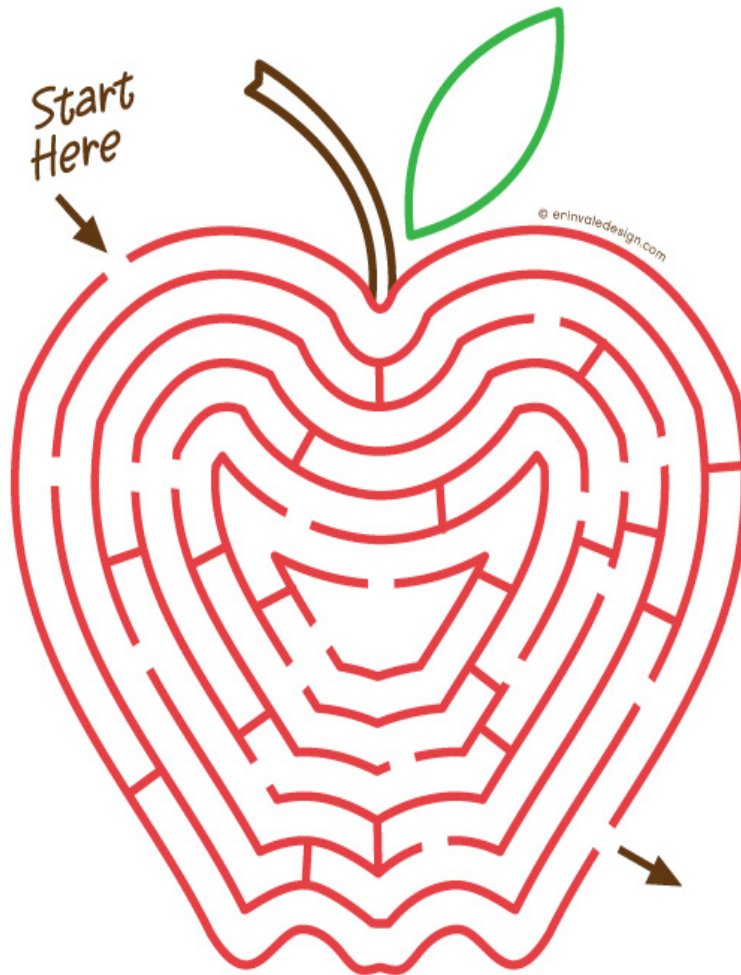
sandwich! Ask your parent to make you one!!!!

Words: **Snack, Peanut Butter, Bananas, Nutritious**

Apples are A-MAZE-ing!!!

There is an old saying that states "An apple a day keeps the doctor away!" This is because apples are not only delicious, they are nutritious as well. They are full of FIBER, something that helps give you energy and helps keep your body feeling and working great.

Directions: Find your way through this apple maze!



©vale design

TRUE or FALSE?

Directions: Read the statements below about childhood obesity. Circle TRUE if the statement is true, or FALSE if the statement is false. Answers are on the following page.

1. Childhood obesity is genetic, so there's nothing you can do about it.

TRUE or FALSE

2. Kids who are obese or overweight should be put on a diet.

TRUE or FALSE

3. It's just baby fat. Kids will outgrow the weight.

TRUE or FALSE

4. Kids who are obese are sometimes the victims of bullying.

TRUE or FALSE

5. There are tons of things that kids and parents can do to help battle obesity.

TRUE or FALSE

ANSWERS

1. **FALSE**: While a person's genes do influence weight, they are only one small part of the equation. Although some children are more prone to gaining weight than others, that doesn't mean they're destined for weight problems. Most kids can maintain a healthy weight if they eat right and exercise.
2. **FALSE**: Unless directed by your child's doctor otherwise, the treatment for childhood obesity is not weight loss. The goal should be to slow or stop weight gain, allowing your child to grow into his or her ideal weight.
3. **FALSE**: Childhood obesity doesn't always lead to obesity in adulthood, but it does raise the risks dramatically. The majority of children who are overweight at any time during the preschool or elementary school are still overweight as they enter their teens. Most kids do not outgrow the problem.
4. **TRUE**: Children who are obese are more likely to be teased and bullied at school and in their neighborhoods. Bullying is never okay and these kids should tell an adult as soon as possible.
5. **TRUE**: Parents and kids have lots of options that can help fight against childhood obesity. Talk to your mom or dad about ideas you have to help fight obesity!

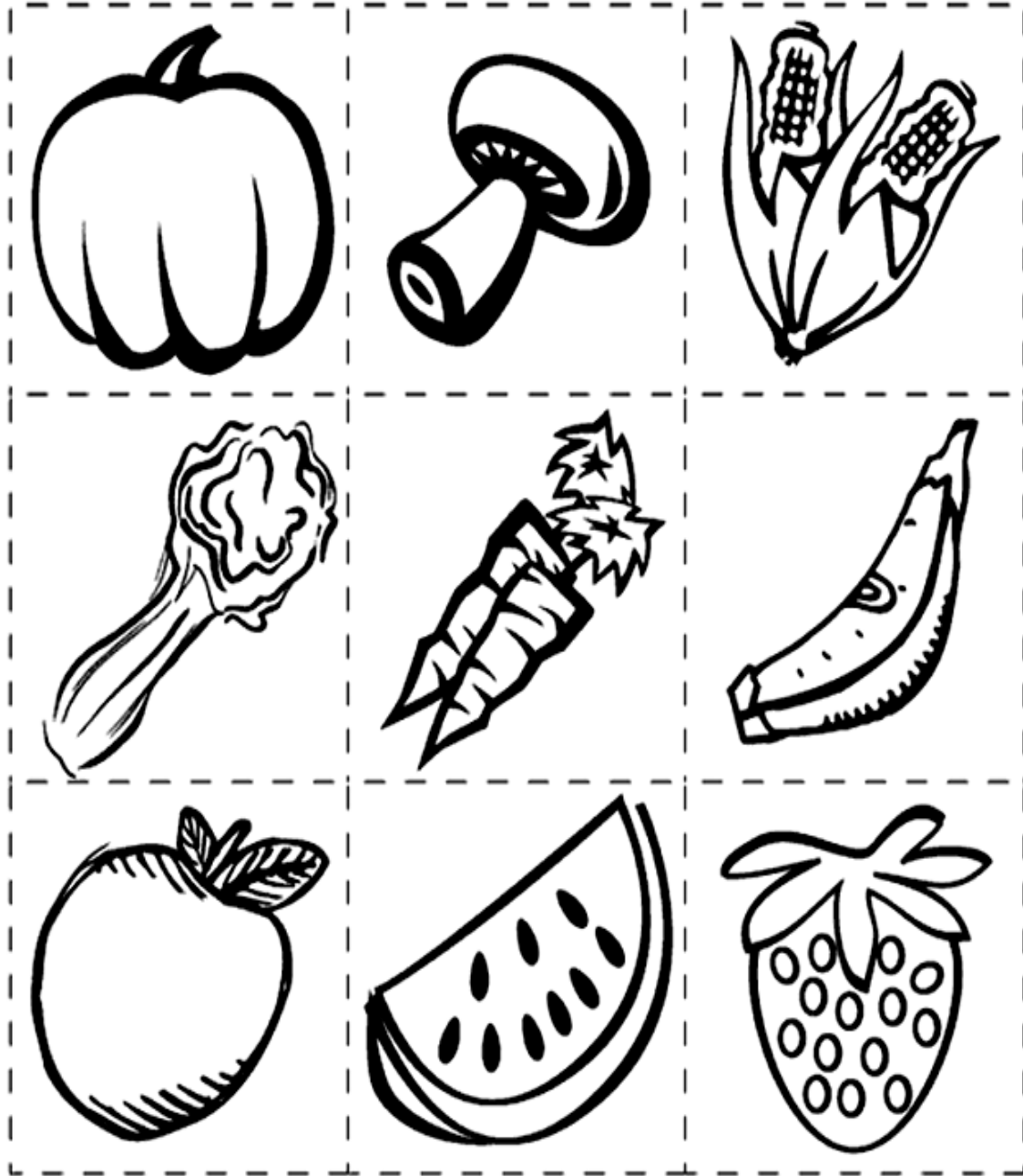
TRUE or FALSE?

Add (+) and Subtract (-)

Directions: Read each statement below and mark a plus sign (+) in the box of those foods you should add to your diet and a minus sign (-) of those items you should subtract from your diet.

Fresh fruits and vegetables that can be taken on the go or packed in a lunch <input type="checkbox"/>	White bread, sugary breakfast cereals, and chips <input type="checkbox"/>
Soda, sweetened lemonade, fruit punch, and fruit juice with added sugar <input type="checkbox"/>	Low-fat frozen yogurt, frozen fruit juice bars, fig bars, ginger snaps <input type="checkbox"/>
Low-fat or non-fat milk and dairy products including string cheese <input type="checkbox"/>	Whole grain breads and cereals, pretzels, and low-fat microwave popcorn <input type="checkbox"/>
Hot dogs, fatty lunch meats, sausage, chicken nuggets <input type="checkbox"/>	Cookie, cakes, candy, ice cream, donuts <input type="checkbox"/>





FRUIT & VEGGIE MATCH-UP

DIRECTIONS:

1. Print this sheet out twice. Color the fruits and vegetables with your favorite Crayola® crayons, markers or pencils, and cut out the cards along the dotted lines.

2. Arrange the cards face down between the players.

TO PLAY:

Take turns with friends or family members choosing two cards to flip over. If the pictures do not match, return them face down to where they were. If they do match keep them. When all the cards have been matched up, count the number of pairs each player has. The person with the most pairs wins!

Vegetable Word Search

Find and circle all the vegetables that are hidden in the grid.
The words may be hidden in any direction.

G L R R H C A N I P S
F T I E P O T A T O T
N L B B T O N I O N O
A R R M N E C S T L C
P S O U A G E E N H E
S Q C C L A E P S A L
A U C U U B A I T M E
E A O C O B D C W L R
P S L R E A I R E D Y
M H I H R C A R R O T
T O A E G G P L A N T

CABBAGE
BROCCOLI
RADISH
SQUASH
CELERY
CUCUMBER
EGGPLANT

POTATO
CARROT
SPINACH
CORN
BEET
PEAS
ONION

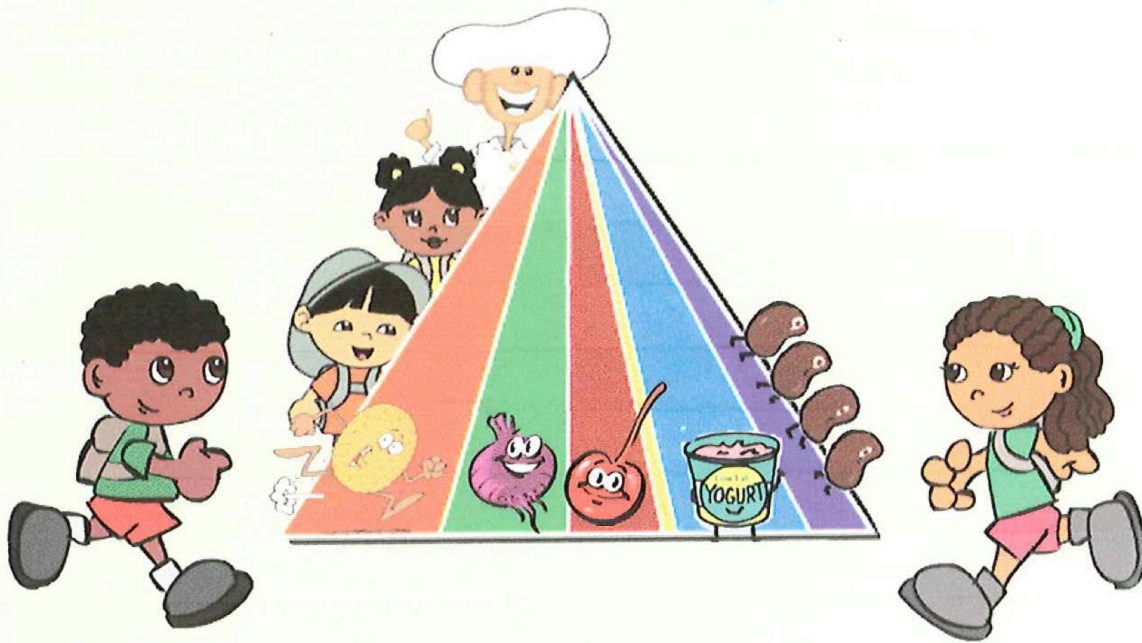
Healthy Foods Name Game

Watch your knowledge grow each time you play. Try some of the healthy foods you name today!

	  <p>Whole Grain Foods</p>	  <p>Vegetables You Eat Raw</p>	  <p>Round Fruits</p>	  <p>Types of Cheese</p>
  <p>Types of Nuts</p>	<h2>Ways to Play</h2> <p>Quick Play for Young Children (4-6 players):</p> <ul style="list-style-type: none"> Review the healthy foods (on opposite side) with the children, and talk about other healthy foods in each food group. Give each player a different marker (colored paper pieces, graham bits, cereal, etc.) and have them place it on "home." Have a player roll a die and move the amount of spaces rolled. The player then moves as many spaces as he or she can name of HEALTHY foods in the category landed on. Every player takes a turn, and then starts with the category they are on their next turn and names HEALTHY foods in that category, again moving as many spaces as they can name in that category. Continue play until the first player reaches "home" or count how many times each player passes "home." Each time around players should be able to name more from what other players listed. <p>Play as a Team:</p> <ul style="list-style-type: none"> Players work together to name as many foods as they can in each category, working around the game clockwise. For fun, break into smaller teams and keep track of each teams total of healthy foods named until you reach the finish line. 	  <p>Meats You Grill</p>		
  <p>Foods Made with Milk</p>		  <p>Types of Pasta</p>		
  <p>Types of Berries</p>		  <p>Vegetables You Cook</p>		
  <p>GREEN Vegetables</p>		  <p>Types of Cereal</p>	 <p>Things You Drink</p>	  <p>Types of Beans</p>

Try a fun drawing game! Each player draws as many healthy foods as he/she can for each category. The player to draw (and name) the most foods for a category gets a point for that square. Keep track of each player's points until you reach the finish line. The player with the most points wins! To keep the game moving and for more fun, put a time limit on each square! (You can also try this in teams where the team members have to be able to name what their teammate is drawing!)

The Food Pyramid



meat, beans, fish, and nuts

grains

milk and
dairy
products

fats and oils

fruits

vegetables

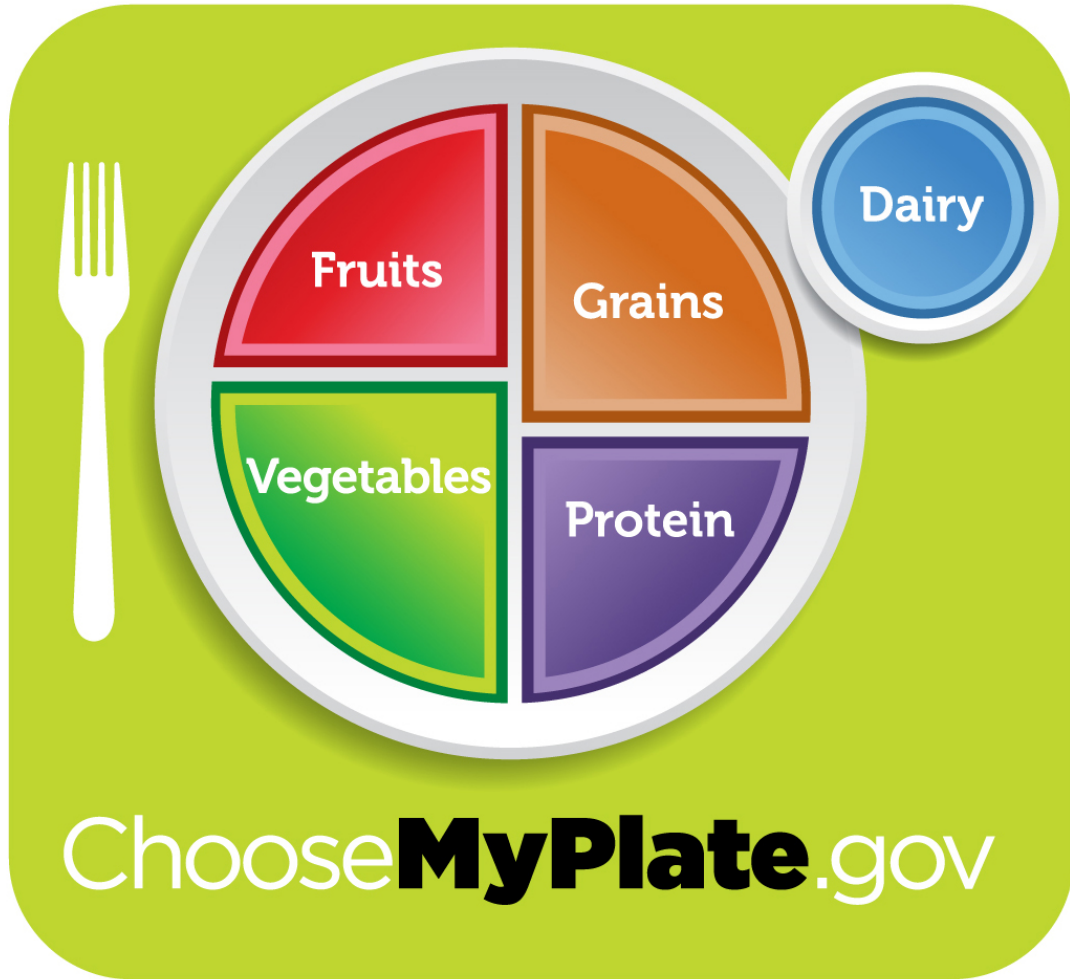
Balanced Meal



Visit www.ChefSolus.com for
healthy foods, creating balanced meals and being active,
nutrition education games, puzzles, activities and more!
Copyright © Nourish Interactive, All Rights Reserved



My Plate



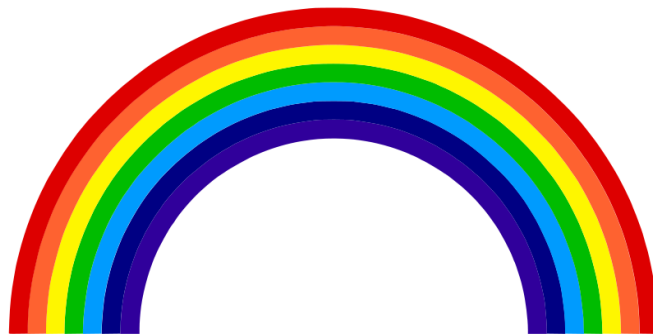
What should your plate look like at mealtime?

Your plate should look like Myplate, which has four colored sections representing fruits, vegetables, grains and proteins. Next to the plate is a smaller circle representing dairy products.

Kids, hang the Choose My Plate symbol on your refrigerator as an easy guide to use when eating. If your dinner plate matches up with the four quadrants and one circle, then you'll have a great start to a balanced and nutrient-filled meal!

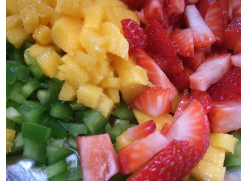
✚ **Healthy Eating Tips for Kids**

- ✚ **Eat the rainbow.** Eat a wide variety of fruits and vegetables. This should include **red** (beets, tomatoes), **orange** (carrots, squash), **yellow** (potatoes, bananas), **green** (lettuce, broccoli) and so on—just like eating a **rainbow**!
- ✚ **Make breakfast a priority.** Children who eat breakfast are less likely to be overweight or obese than those who skip the first meal of the day. Focus on healthy choices like oatmeal, fresh fruit, whole grain cereal, and low-fat milk.
- ✚ **Cut back on fat.** You do need some fat to maintain good health, but these fats should come from good sources such as fish and nuts. Cut way back on fast food, junk food, and sweets.
- ✚ **Eat at regular meal times as often as possible.** Try not to snack as much between meals and if you can, eat around the same time each day.
- ✚ **Limit dining out.** If you must eat out, avoid fast food and make the healthy, conscious choices you are trying to make at home.



FUN, EASY KID RECIPES

Stop Sign Snack



You will need:

- 1 Pineapple ring cut into pieces
- 2 Strawberries, cut in half
- 2 Kiwi rings
- 1 Reduced Sugar Graham Crackers
- 1 Tablespoon Fat Free Strawberry Cream Cheese

*** Make sure you have an adult help you cut your fruit!**

What you do:

1. Spread the strawberry cream cheese on the graham cracker.
2. Place the strawberries on top of the cream cheese at the top of the cracker.
3. Place the pineapple pieces on top of the cream cheese in the middle of the cracker.
4. Place the kiwi pieces on top of the cream cheese at the bottom of the cracker.

ENJOY!!!!

FUN, EASY KID RECIPES

BANANA POPS



You will need:

- 3 Bananas
- 6 Popsicle sticks
- 1/4 cup peanut butter, softened
- 1/4 cup chopped peanuts or walnuts, granola, or crispy rice cereal

What you do:

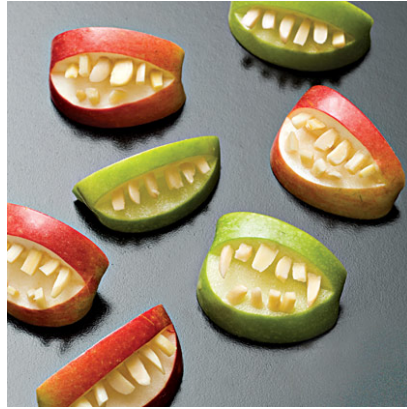
1. Peel the bananas.
2. Cut them in half, widthwise, and push a Popsicle stick through the cut end of each half.
3. Spread peanut butter on the bananas, then roll them in the nuts, or cereal.
4. Wrap them in waxed paper and freeze for 3 hours.

Makes 6.

ENJOY!

FUN, EASY KID RECIPES

APPLE BITES



What you need:

Apples
Slivered almonds

What you do:

Quarter and core an apple

Cut a wedge from the skin side of each quarter, then press slivered almonds in place for teeth.

Tip:

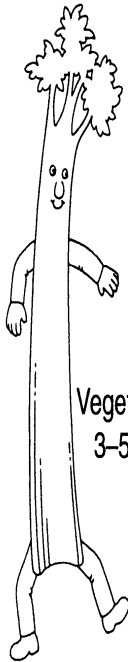
If you're not going to serve them right away, baste the apples with orange juice to keep them from browning.

ENJOY!

Name _____
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The Food Pyramid

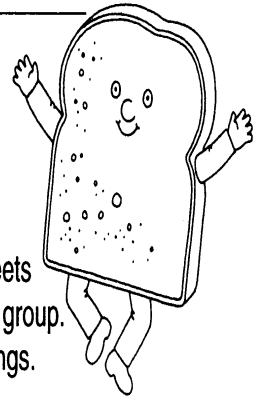
Make a balanced food plan for one day.
On the pyramid, draw the foods you select.



Vegetable Group
3-5 servings

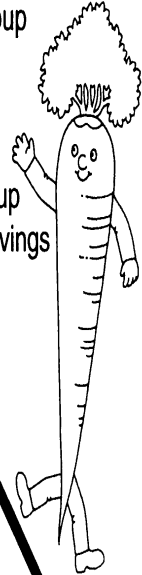
Milk, Yogurt, and
Cheese Group
2-3 servings

Fats, Oils, and Sweets
This is not a food group.
Limit your servings.



Meat, Poultry, Fish, Dry Bean,
Egg, and Nut Group
2-3 servings

Fruit Group
2-4 servings



Bread, Cereal, Rice, and Pasta Group
6-11 servings

FS-2492 The Food Pyramid



Fill in your Food Pyramid and color the picture. Hang the finished picture on your refrigerator!

RESOURCES

The Dayton community has many resources available to families interested in learning about healthy living, nutrition, and lifestyle changes. Listed below are just a few, however feel free to inquire about new and upcoming programs in your area.

Boys and Girls Clubs of America– Triple Play Program

Triple Play, BGCA's first comprehensive health and wellness program, developed in collaboration with the U.S. Department of Health and Human Services, strives to improve the overall health of children ages 6-18 by increasing their daily physical activity, teaching them good nutrition and helping them develop healthy relationships. Triple Play also offers a Parents Game Plan because parents play such a critical role in the development of a child's physical and social well-being.

Contact: Akini Cyrus, Program Director akni@bgcdayton.org or 937.262.8377

<http://www.bgcs.org/whatwedo/PosrtsFitnessRecreation?Pages?TriplePlayResource.aspx>

Cassano Health Center – Do Wop Program (Diabetes and Obesity Wellness Opportunities Program)

By combining nutrition education with dance, exercise, and cognitive-behavioral modification, the award -winning Do Wop program in the Dayton area is for children ages 9-14 who are at risk of developing diabetes.

Contact: 937.558.0200

<http://grandviewfoundation.org/dowop.cfm>

Community Child Health Centers

The Community Child Health Centers operate three community-based health centers that provide quality comprehensive pediatric health services to Montgomery County families with children from infancy to age 16. The program serves children who are in families that have low household income, uninsured, or have difficulty finding affordable health services.

Address: 25 Thorpe Dr. Dayton, OH 45420 or 2166 N. Gettysburg Dr. Dayton, OH 45406. Call 937.258.6330 or 937. 496. 7155

GetUp Montgomery County – 5-2-1, almost none Program

GetUp is all about helping children make healthier lifestyle choices, especially when it comes to eating better and being more physically active. This program helps families adopt these four easy steps:

5 servings of fruit and vegetables daily

2 hours or less per day in front of the TV or game screens

1 hour of active play each day (even if it is for 15 minutes at a time)

Almost no sugary soda or juice flavored drinks.

Contact 937.225.4398 or info@getupmc.org <http://getupmc.org>

Girls on the Run, International

Girls on the Run International is a life-changing, character development program for girls in the 3rd grade through 8th grade. Girls on the Run, Dayton's mission is to educate and prepare girls for a lifetime of self-respect and healthy living by combining training for a 5k event with healthy living information. We use exercise, positive reinforcement, and encouraging role models to help girls discover the confidence they need in the critical pre-teen years and beyond.

*Contact: Angela Lewis, Council Director angela@gotrdayton.org or 937.430.4141
<http://gotrdayton.org/>*

K4L Youth Empowerment Program

K4L is a hip-hop based violence prevention and youth empowerment program for adolescent males, through Central State University. This program focuses on positive decision making and healthy choices, which includes nutrition. Participants utilize the medium of hip hop to express themselves, develop self-esteem, and make positive behavior changes.

*Contact: Dr. Jamaal Scott, Program Director jscott@centralstate.edu or 937-222-7724
<http://k4lyouth.com>*

Ray and Joan Kroc Corps Community Center

The Fitness Center offers over 5,000 square feet of fitness equipment with an Aerobic/Dance Studio. Membership does come at a cost, however there are lots of activities for everyone in the family including an open gym and healthy cooking classes. Also children ages 0-3 are free!

Address: 1000 N. Keowee Street, Dayton, OH 45404 or 937 – 528-5150.

Second St. Farmers Market

With sponsorship assistance from PNC Bank, local growers, bakers, culinary specialists, and artisans fill this charming historic freight house. Shoppers can enjoy fresh fruit, vegetables, breads, meats, and cheeses from local farmers. Open year round Thursday and Friday 11 a.m.-3 p.m.; Saturday 8 a.m.-3 p.m.

Address: 600 E 2nd Street, Dayton, Ohio 45402 937- 228-2088

YMCA Diabetes Prevention Program (YDPP)

The YMCA's Diabetes Prevention Program (YDPP) helps those at high risk adopt and maintain healthy lifestyles and reduce their risk of developing Type 2 diabetes. The YMCA's Prevention Program is a part of the CDC-led National Diabetes Prevention Program.

*To register contact Abby Helsing at 937-223-5201 or ahelsing@daytonymca.org.
Visit www.ymcaonline.org for center locations.*

Book Resources

The Tale of Two Athletes: The Story of Jumper and Thumper. A True Story on Understanding and Combating Childhood Obesity. Author House Publications
By: M. Christopher Griffith, M.D., and Jeana R. Griffith, Ph.D.

Patti LaBelle's Lite Cuisine
By: Patti LaBelle

Kids Fun & Healthy Cookbook: Over 100 Step-by-Step Recipes. Dorling Kindersley Ltd.
By: Nicola Graimes

Eating the Alphabet
By: Lois Ehlert

Now I Eat My ABC's
By: Christopher Routly

Online Resources

For Nutritious Recipes visit:

<http://familyfun.go.com/recipes/appetizers-snacks/healthy-snacks>

For more information about the food pyramid visit:

www.choosemyplate.gov
www.ChefSolus.com

For additional information about McDonald's nutritional facts visit:

<http://nutrition.mcdonalds.com/getnutrition/nutritionfacts.pdf>

For additional information about Burger King's nutritional facts visit:

www.bk.com/cms/en/us/menu-nutrition

For additional information about Wendy's nutritional facts visit:

www.wendys.com/food/Nutrition

For additional information about Taco Bell's nutritional facts visit:

www.tacobell.com/nutrition/information

For more obesity related glossary of terms visit:

www.nih.gov

For more tips about mindful eating visit:

http://www.superkidsnutrition.com/nutrition_answers/pr_10-mindful-eating-tips.php



GLOSSARY OF TERMS

Here are some words you will frequently hear regarding childhood obesity. This list was provided by the Weight Control Information Network of the National Institute of Health.

A1C test – A common blood test used to diagnose type 1 and type 2 diabetes and also measures your average blood glucose for the past 2-3 months.

Adipose tissue – fat tissue

BMI - A measure of body weight relative to height. BMI is a tool that is often used to determine if a person is at a healthy weight, overweight, or obese, and whether a person's health is at risk due to his or her weight. To figure out BMI, use the following formula:

$$\text{BMI} = \frac{\text{Weight (in pounds)} \times 703}{\text{Height (in inches)} \times \text{Height (in inches)}}$$

A body mass index (BMI) of 18.5 to 24.9 is considered healthy. A person with a BMI of 25 to 29.9 is considered overweight, and a person with a BMI of 30 or more is considered obese.

Bariatric Surgery - Surgery on the stomach and/or intestines to help patients with extreme obesity to lose weight. Bariatric surgery is a weight-loss method used for people who have a body mass index (BMI) above 40.

Calorie - A unit of energy in food.

Carbohydrate - A major source of energy in the diet. There are two kinds of carbohydrates -- simple carbohydrates and complex carbohydrates: simple carbohydrates are sugars and complex carbohydrates include both starches and fiber. They are found naturally in foods such as breads, pasta, cereals, fruits, vegetables, and milk and dairy products. Foods such as sugary cereals, soft drinks, fruit drinks, fruit punch, lemonade, cakes, cookies, pies, ice cream, and candy are very high in sugars.



GLOSSARY OF TERMS

Cholesterol - A fat-like substance that is made by the body and is found naturally in animal foods such as meat, fish, poultry, eggs, and dairy products. Cholesterol is needed to carry out functions such as hormone and vitamin production.

LDL (low density lipoprotein) is often referred to as *bad cholesterol*. LDL carries cholesterol from the liver to the cells. Too much LDL can increase the risk of heart disease.

HDL (high density lipoprotein) is often referred to as *good cholesterol*. HDL does the opposite of LDL and carries cholesterol away from the cells and back to the liver where it can be broken down and expelled as waste.

Diabetes - A disease that occurs when the body is not able to use blood glucose (sugar). Blood sugar levels are controlled by insulin, a hormone in the body that helps move glucose (sugar) from the blood to muscles and other tissues. Diabetes occurs when the pancreas does not make enough insulin or the body does not respond to the insulin that is made. There are two main types of diabetes: Type 1 diabetes and Type 2 diabetes.

Diet - What a person eats and drinks. Any type of eating plan.

Fat - A major source of energy in the diet. Fat helps the body absorb fat-soluble vitamins, such as vitamins A, D, E, and K.

Glucose - A building block for most carbohydrates. Digestion causes some carbohydrates to break down into glucose. After digestion, glucose is carried in the blood and goes to body cells where it is used for energy or stored.

High Blood pressure - Another word for “hypertension.” Blood pressure rises and falls throughout the day. An optimal blood pressure is less than 120/80 mmHg. When blood pressure stays high—greater than or equal to 140/90 mmHg—you have high blood pressure. With high blood pressure, the heart works harder, your arteries take a beating, and your chances of a stroke, heart attack, and kidney problems are greater. Pre-hypertension is blood pressure between 120 and 139 for the top number, or between 80 and 89 for the bottom number. If your blood pressure is in the pre-hypertension range, it is more likely that you will develop high blood pressure unless you take action to prevent it.



GLOSSARY OF TERMS

Insulin - A hormone made by the pancreas that helps move glucose (sugar) from the blood to muscles and other tissues. Insulin controls blood sugar levels.

Metabolism - All of the processes that occur in the body that turn the food you eat into energy your body can use.

Obesity - Obesity is having too much body fat. Because body fat is usually not measured, a ratio of body weight to height [see body mass index, or BMI, chart] is often used instead. It is defined as BMI. An adult who has a BMI of 30 or higher is considered obese.

For example John is 274 pounds and is 5 foot 7. According to his height and weight measurements he has a BMI of 30.

Overweight - It is defined as a body mass index (BMI) of 25 to 29.9. Body weight means weighing too much and may come from fat, muscle, bone, and body water. It is important to remember that although BMI correlates with the amount of body fat, BMI does not directly measure body fat.

For example, some people, such as athletes, may have a BMI that identifies them as overweight even though they do not have excess body fat.

Protein - One of the three nutrients that provides calories to the body. Protein is an essential nutrient that helps build many parts of the body, including muscle, bone, skin, and blood.

Registered Dietician - A person who has studied diet and nutrition at a college program approved by the American Dietetic Association, completed 900 hours of supervised practical experience accredited by the Commission on the Accreditation for Dietetics Education, and passed an exam to become an R.D.

Type 1 diabetes - Previously known as “insulin-dependent diabetes mellitus,” or “juvenile diabetes.” Type 1 diabetes is a life-long condition in which the pancreas stops making insulin. Without insulin, the body is not able to use glucose (blood sugar) for energy. To treat the disease, a person must inject insulin, follow a specific eating plan, exercise daily, and test blood sugar several times a day. Type 1 diabetes usually, but not always, begins before the age of 30.



GLOSSARY OF TERMS

Type 2 diabetes - Previously known as “noninsulin-dependent diabetes mellitus” or “adult-onset diabetes.” Type 2 diabetes is the most common form of diabetes. About 90 to 95 percent of people who have diabetes have type 2 diabetes. People with type 2 diabetes produce insulin, but either do not make enough insulin or their bodies do not efficiently use the insulin they make. Most of the people who have this type of diabetes are overweight. Therefore, people with type 2 diabetes may be able to control their condition by losing weight through diet and exercise. They may also need to inject insulin or take medicine along with continuing to follow a healthy program of diet and exercise. Although type 2 diabetes commonly occurs in adults, an increasing number of children and adolescents who are overweight are also developing type 2 diabetes.

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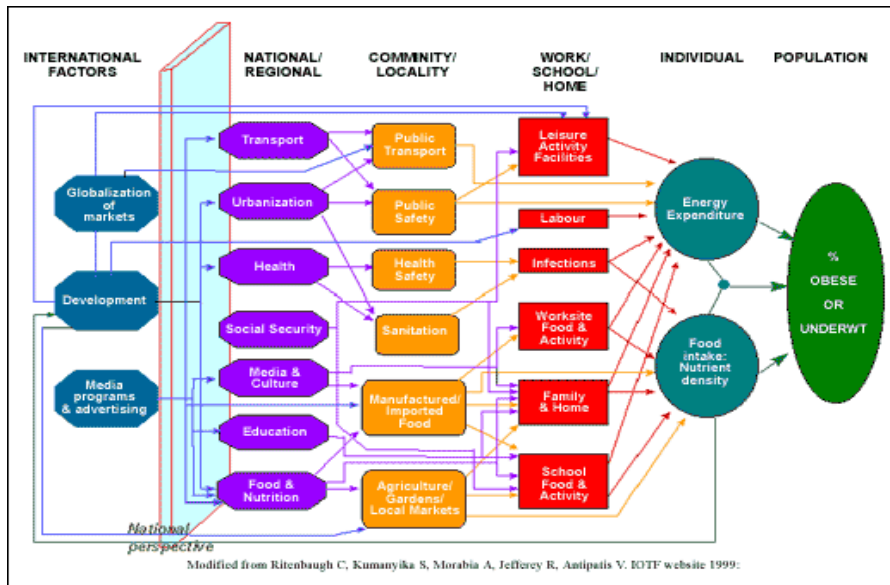
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Appendix C

Factors Involved in the Maintenance of Childhood Obesity

Multiple Factors involved in Childhood Obesity

Derived in part from a study on Childhood obesity conducted by the Department of Health and Human Services in 2002



International/National/Regional. This includes messages about food, health, body, weight, etc. Society dictates what is “normal” and has influence on children in that they become targets of marketing and advertising (video games, television, computer games, etc.). In general, children and adolescents are eating more food away from home, drinking more sugar-sweetened drinks, and snacking more frequently.

Community/Locality. This includes specific cultural messages about health and wellness. Also includes cultural diversity variables surrounding food preparation, standards of beauty, and physical activity choices.

Work/School/Home. This includes an individual’s Family, Socio-Economic Status and Race/Ethnicity. This category includes messages regarding food selection, preparation, and portion size. It also captures factors such as parental income, education, occupation, and child-rearing practices. Since parents are often responsible for food selection and preparation, intervention aimed here will likely have to address messages from both community and society.

Individual. This includes personal attributes such as metabolism and genetics. Also includes personality style and willingness to engage in change. As children, these characteristics are generally malleable and therefore conducive to intervention, especially if reinforced in the family subsystem (with greater success when reinforced within all other subsystems as well).

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