

Childhood Obesity:

Causes and Considerations



By Jacqueline Jacques, ND



As obesity rates in adults in the United States continue to rise, so too does the problem in children and teens. In July 2006, Harvard University researchers released data from a 22-year study in children under the age of six showing that there has been an overall increase in the prevalence of overweight by 59 percent in this age group. In teens (aged 12-19), rates have tripled. Overall, there are approximately 9 million U.S. children over the age of six who are obese, and the number is on the rise.

Defining the Problem

Technically, there is no “obesity” in children, although there has recently been discussion by the Centers for Disease Control (CDC) and the American Medical Association of changing this. Currently, the term obesity is not actually used in those aged two to 19. Normal size in children is assessed by recording height (or length) and plotting it on a standard growth chart. There are separate charts for boys and girls (*please see charts on following pages*). Children who fall between the 85th and 94th percentile are termed “at risk for overweight” category and those above the 95th percentile are “overweight.” Despite the terminology, it is increasingly recognized in medicine that unhealthy weight is significantly affecting the lives of many children and teens just as obesity affects adults. This includes the recognition of “adult” comorbidities such as sleep apnea, depression, diabetes and hypertension – even in children younger than age 10.

Contributing Causes

Just as there is no single factor known to cause obesity in adults, there is no one cause in children. Contributing causes in children include, but are not limited to: genetic predisposition, overeating, lack of physical activity, lack of sleep, time spent watching television or playing video games, consumption of high-calorie liquids (such as soda) and eating away from home. Despite the glut of new studies in the area, one single factor is unlikely to explain the striking increases that have been observed.

While genetics gets discussed frequently when it comes to children, it is unlikely that our genes have changed radically enough in the past two decades to account for the dramatic shift in childhood weights. More likely is that, just as in adult obesity, we are seeing the compound result of these multifactorial problems as they are converging in younger generations. Some of these contributing causes include the following:

Changes in Diet

On the most basic level, children today eat more calories than ever before. In a 20 year period between 1977 and 1996, caloric intake increased by approximately 120 calories per child per day. This could amount to almost 12 extra pounds per year assuming the extra calories are not compensated for by physical activity.

More children also obtain increasing numbers of calories from refined sugars such as high fructose corn syrup (HFCS) and highly processed and fatty foods. HFCS has garnered particular attention as consumption in those



more than two years of age has increased approximately 1000-fold and it has been specifically researched to increase factors related to obesity.

Soda is the most significant source of HFCS in children's diets; however both soda and sweetened juice intake are associated with higher childhood BMI. Overall, for the addition of each sugary beverage in a child's diet, the odds of a child becoming obese as an adult increases by 60 percent.

Other dietary associations include low intakes of dairy foods, high intakes of fatty foods and low intakes of fiber containing foods like whole grains. Finally, breastfeeding appears to be of benefit in reducing the risk of childhood obesity by 22 percent. A meta-analysis looking at nine studies of nearly 70,000 people also found that the duration of breastfeeding impacted this risk. Although, it is worth noting that other studies have found no relationship between breastfeeding and body weight.

Changes in Eating Habits

Along with how much and what children eat, how and in what environment they eat may be impacting weight. Hours spent watching television, specifically eating in front of a television, has been linked to weight gain for several reasons. The average child in the U.S. spends 20 hours per week watching television. Up to 20 percent of this time is accounted for by meals eaten while watching TV. Specifically, watching TV while eating is associated with both increased weight and poorer food choices – especially lower intakes of fruits and vegetables. Eating meals at home is also associated with lower weights.

Today's children average eating one third of their calories away from home, up one fifth of their calories in the 1970s. Most of these calories are from prepared foods which tend to be higher in sugar and fat and served in larger portions. Children are also 15 percent less likely to be overweight if meals, especially dinner, are eaten together with their family on most days of the week. Related research on school lunch programs has shown that children who serve themselves (select their own portion sizes) are less likely to overeat compared to those who are served a fixed, large portion of food. Finally, skipping breakfast appears to be a risk factor for childhood overweight.

Mood and Behavior

Carrying excess weight in childhood can negatively impact self esteem and mood in children, but it also appears that mood may be a contributing cause to weight gain. A study conducted by RAND showed that girls with behavioral problems in kindergarten were up to 81 percent more likely to be overweight by second grade compared to their counterparts. This does not appear to be a risk factor for boys.

According to investigators at Stanford University, children who have problems with anger or frustration are 6.6 times more likely to become overweight or obese. These researchers also found that highly emotional children and those who had regular food-related tantrums were 2.3 and three times more likely to become overweight respectively.

Exercise and Physical Activity

Exercise habits and overall activity levels play a clear role in weight management and maintenance. In childhood, lower activity levels are tied to higher weights in almost all studies. Data from 2003 collected by the CDC reported that 25 percent of U.S. children engage in no free-time physical activity. According to the Institute of Medicine, 62 percent of children have no physical activity outside of school, and enrollment in physical education programs in the U.S. had dropped by 14 percent since 1991, with few than one-third of children now participating.

Other Lifestyle Issues

Some unique risk factors for childhood obesity have emerged out of studies looking at family and lifestyle. One of these is sleep habits. Studies that look at weight and sleep duration in children have shown that those who sleep less than 10 hours per night are 245 percent more likely to be overweight compared to children who get 12 to 13 hours of sleep. This is thought to be largely due to the impact of sleep on hormones (like leptin and ghrelin) that are involved in the regulation of appetite and metabolism. Another study showed that among children aged three and four, a small (30 minute) reduction in daytime napping equated to as much as 6.6 times increase in the prevalence of overweight.

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As mentioned above, hours spent watching TV is highly associated with increased weight. This includes not only the duration of time spent watching TV (which, in part, means that kids are sedentary rather than engaging in physical activity), but also the kind of TV they watch.

Studies focusing on the impact of advertising, for example, have shown that children who see multiple ads per day for unhealthy and fattening foods are significantly more likely to be overweight when compared to those who see fewer ads or those who see ads for healthy foods. This suggests that it is not only hours watched, but the content viewed impacting food choices that ultimately influences weight. In addition to television, time spent in front of a computer or playing video games appears to have a similar impact. There is also some evidence that having a parent who is a smoker is associated with increased weight gain in childhood.

Socioeconomic Status

While children of all income classes develop problems with weight, there is a greater risk to children from low-income homes. This is believed to be based on several issues including available food choices, food insecurity and safety (families living in unsafe neighborhoods are less likely to allow their children to play outdoors in the neighborhood.)

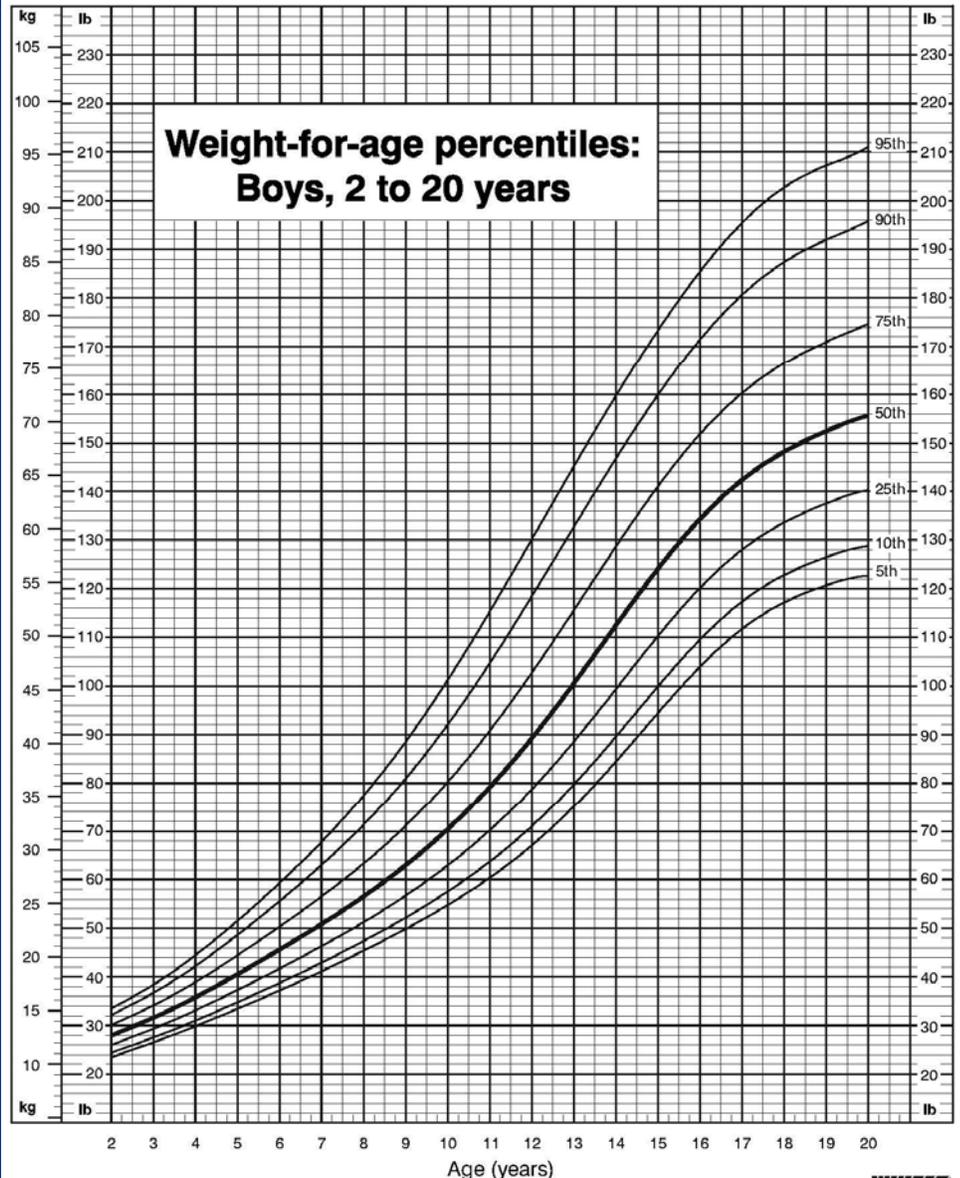
Genetics

In general, children who are born to overweight or obese parents are more likely to be overweight or obese themselves. It may be hard to see what aspects of the weight gain in the child are related to genetics and what are re-

lated to lifestyle in these situations. We do know that if a mother is obese during pregnancy, it is almost twice as likely that her child will be obese. One analysis has shown that children of obese parents are 13 to 15 percent more likely to be obese compared to those of non-obese parents.

The condition of insulin resistance which predisposes people to both diabetes and obesity has both genetic and environmental causes. Researchers are also busy examining gene variants that may directly contribute

CDC Growth Charts: United States



Published May 30, 2000.
SOURCE: Developed by the National Center for Health Statistics in collaboration with
the National Center for Chronic Disease Prevention and Health Promotion (2000).

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to obesity. Earlier this year, for example, a defect in a gene called *INSIG2* was found to be associated with obesity. This obesity-predisposing gene is present in around 10 percent of the population. Researchers predict they will find other genes in the future that also contribute to obesity.

Where Do We Start?

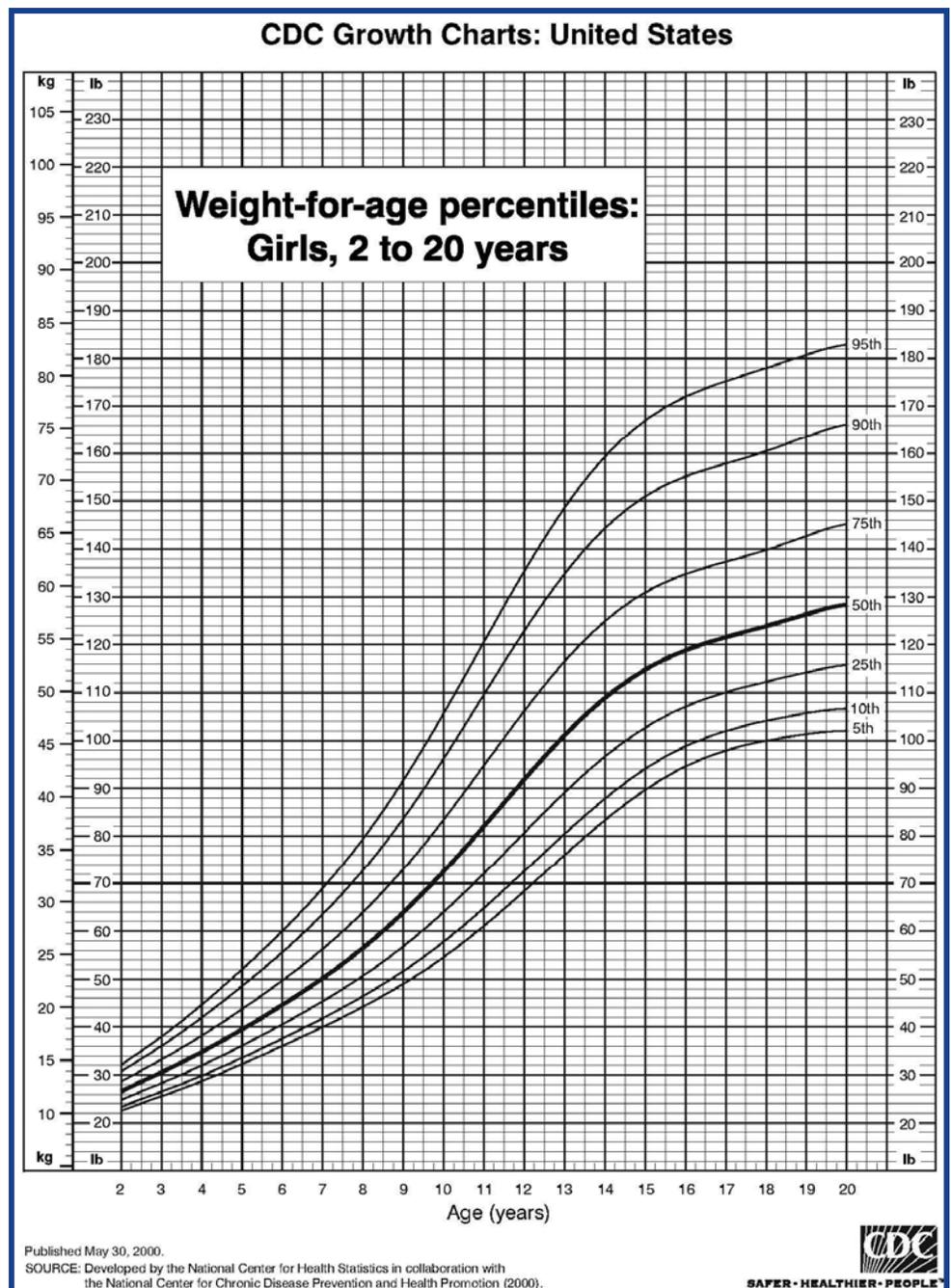
Clearly, childhood obesity is a complex issue that is not fully understood. Most obesity experts agree that we need to look at interventions on many levels: government, school, community and home.

If you have a child who is struggling with weight, the first step is identifying and acknowledging the problem. Despite the increased awareness of childhood obesity, studies have shown that both parents and doctors frequently fail to identify the problem. If you suspect your child has a weight problem, if your child has expressed concerns, or if others (such as teachers, friends, family, members or coaches) have expressed their concern for your child, then it is probably a good idea to talk to your doctor. A physician can help to determine whether your child's weight is appropriate and can help to rule out medical conditions that may cause or contribute to the problem. If your physician is knowledgeable about childhood nutrition and weight management, they may also be able to offer support and advice for diet and exercise. If your physician is not knowledgeable in these areas, it may be more appropriate to ask for a referral to a dietitian or other health professional.

Experts agree that diet alone is not a solution for childhood obesity. Any

successful treatment must include not only diet, but also exercise, education and counseling for both the child and family. Dietary modification for children usually requires not only assessing their energy and nutritional needs, but also teaching them proper eating habits that they can use for the rest of their lives.

Healthy eating is often as important as calories in managing weight in children. Sometimes very simple





measures such as eliminating high-calorie drinks, and adding fresh fruits and vegetables make a big difference. A dietitian or nutritionist who specializes in childhood nutrition is usually best-qualified to provide this care.

Physical activity is not only important for weight management in kids, but also for their general health. The 2005 USDA Dietary Guidelines for Americans recommends a full hour of exercise seven days a week for children and teens.

Exercise can take any form – from walking to school to playing an organized sport. If your child has engaged in little or no physical activity, then they may need to start slowly. Consider choices that are easily accessible such as those offered through schools or community centers. Activities that can be done as a family like walking or a home exercise video are also easy ways to start. If your child has a health issue or other problem making exercise difficult, you can ask your doctor for a referral to a physical therapist or exercise specialist. This can be especially important for kids with physical challenges like asthma.

Education and counseling are important to help kids make changes that will be lasting. It is usually important that both the child and the family participate in this area of care. As discussed above, many issues related to mood, lifestyle and environment have significant impacts on weight in children. If these issues can be addressed with the whole family, it is likely to have the most positive influence on the child.

Other treatments are also used in addressing obesity in children. Depending on age, health, growth status and other factors, children may be candidates for other medical treatments. These include medical weight management programs, drug treatments and weight-loss surgery. The latter treatments are usually reserved for teens, but are finding growing acceptance as childhood obesity is better understood.

Conclusions

Childhood obesity is a complex condition that needs to be addressed on many levels. It is important for families who are affected to not only understand the causes, but also to have access to appropriate care for their children.

About the Author:

Dr. Jacqueline Jacques is a Naturopathic Doctor with more than a decade of expertise in medical nutrition. She is the Chief Science Officer for Catalina Lifesciences LLC, a company dedicated to providing the best of nutritional care to weight-loss surgery patients. Her greatest love is empowering patients to better their own health. Dr. Jacques is a member of the OAC Advisory Board.



To view the references cited in this article, please visit the October 2006 issue of OAC News on the OAC Web site at www.obesityaction.org.





ABOUT THE OBESITY ACTION COALITION (OAC)

The Obesity Action Coalition (OAC) is a National non-profit organization dedicated to giving a voice to individuals affected by obesity and helping them along their journey toward better health. Our core focuses are to elevate the conversation of weight and its impact on health, improve access to obesity care, provide science-based education on obesity and its treatments, and fight to eliminate weight bias and discrimination.



VIBRANT COMMUNITY



NATIONAL AWARENESS CAMPAIGNS



ANNUAL CONVENTION



ADVOCACY



PUBLIC EDUCATION

LEARN, CONNECT, ENGAGE

The OAC knows that the journey with weight can be challenging but we also know that great things happen when we learn, connect and engage. That is why the OAC Community exists. Our Community is designed to provide quality education, ongoing support programs, an opportunity to connect, and a place to take action on important issues.

Through the OAC Community, you can get access to:

- Weight & Health Education • Community Blogs
 - Community Discussion Forum
 - Ongoing Support • Meaningful Connections
- AND MUCH MORE**



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