

PEDIATRIC OBESITY

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Introduction

Pediatric obesity in the United States is an epidemic. Although obesity rates vary among different ethnic groups, an estimated 17% (12.5 million) of U.S. children ages 2-19 years are overweight or obese.¹ The Endocrine Society sought to address this epidemic with its 2008 guideline, *Prevention and Treatment of Pediatric Obesity*. First Lady Michelle Obama has acknowledged that childhood obesity rates were rising at an alarming rate, and established “Let’s Move;” a campaign to combat pediatric obesity through comprehensive strategies of mobilizing public and private sector resources.

Background

Obesity occurs when more calories are consumed than are expended over time. The balance between calories-in and calories-out differs for each person. Factors that might tip the balance include genetic makeup, overeating, consumption of high-calorie, high-sugar foods and drinks, asthma, and not being physically active. In 2001 to 2004, the average intake of added sugars in American’s diets was 355 calories per day. Aside from the obvious lack of nutritional value, the excessive consumption of sugars has been linked with several metabolic abnormalities and adverse health outcomes.² According to the Centers for Disease Control and Prevention (CDC), the prevalence of obesity among U.S. youth increased significantly between the 1980’s and 2000’s. Overweight or obese adults are defined by using weight and height to calculate the body mass index (BMI).¹ An adult who has a BMI over 30 is considered obese and a BMI of 40 or higher is considered morbidly obese. For children and teens, BMI ranges take into account sex, age, and pubertal differences in body fat. A child who is considered severely obese would have a BMI above the 97th percentile in their age range.

An elevated BMI is not the only consequence of obesity. Research has shown that weight gain may increase the risk of developing diabetes, heart disease, stroke, liver disease, kidney disease, reproductive disorders, and arthritis and other skeletal disorders, and other

maladies.³ A 2007 CDC study reported that 70% of obese adolescents were at a high risk for cardiovascular disease and type 2 diabetes. Overweight children and adolescents are more likely to be overweight or obese as adults and the associated co-morbidities are often prolonged or exacerbated in adulthood.

Considerations

To address the pediatric obesity epidemic, endocrinologists, primary care physicians, schools, and parents must work together to educate and encourage lifestyle modifications. Congress must also play a role in strengthening the health of our children through legislation to reduce the availability of added sugar, and increase the availability of healthy, high-fiber foods like vegetables, fruits, whole grains, and fat-free and low-fat dairy products in schools, and advocating for communities that are designed to promote walking and bicycling.

Prevention and Treatment Research

The costs associated with the obesity epidemic have crippled national health care spending. According to a 2004 CDC study, the medical bills of an obese individual are 42% higher than of someone who is not obese. In 2008, an estimated \$147 billion was spent on overall medical care costs related to obesity for U.S. adults.¹ Approximately half of these costs are paid by Medicare and Medicaid.¹

The amount spent on medical expenses associated with the treatment and prevention of obesity in individuals should spur interest in increasing funding for research into new prevention options for childhood obesity. Research may include support for experimental studies that will lead to the understanding of the etiology of obesity and evidence for potential treatments. Programs such as CDC’s Childhood Obesity Demonstration Project and the Pediatric Nutrition Surveillance System may produce recommendations that could stimulate greater attention to the prevention and treatment of pediatric obesity. These programs have also alluded to a connection between maternal weight and obesity of their

children. Therefore research is needed to understand the role of maternal influences on the risk of obesity in childhood and the value of preventive strategies targeted to women of childbearing age.

Targeting Public Policy and Schools

In 2002 the food industry spent \$10-12 billion advertising to children; approximately 89% of those advertisements were for food of poor nutritional quality.⁴ Passing legislation that is geared toward both education on healthy eating and marketing of healthy foods in schools and communities may increase a child's exposure to healthy food options and combat poor nutritional advertisements. Such legislation is especially important since research shows that food advertising affects children's food choices, food purchase requests, and diets.⁵

In the school environment students need access to healthy food and the support of persons around them.⁶ The influence of school goes beyond the classroom and includes normative messages from peers and adults regarding foods and eating patterns. Students are more likely to receive a strong, consistent message when healthy eating is promoted through a comprehensive school health program which includes, among other things, health education; integrated school and community efforts; physical education; and nutrition services.⁷

Local school systems need to assess the nutrition needs and issues particular to their communities, and work with key school- and community-based constituents, including students, to develop the most effective and relevant nutrition education plans for their communities. Policy changes are required that will ensure the adoption of a coordinated school nutrition system which would identify the recommended calories in a balanced meal and implement this recommendation throughout all school lunch programs.

Schools must also play a role in ensuring that children are physically-active. Mandatory physical activity, either during physical education or recess, should be included every day for school-aged children. A recent CDC study showed that less than 4% of elementary schools, 8% of middle schools, and 2% of high schools required daily Physical Education (P.E.) for all students for the entire school year.⁸ However, health experts recommend 30

minutes of daily physical education for elementary school students, and 45 minutes for those in junior high and high school. Currently, only Illinois and Massachusetts require P.E. classes for all kids in kindergarten through 12th grade.⁸

Role of the Physician

Physicians should have a strong role in the prevention of obesity and treatment of an overweight patient, and should prescribe and support intensive lifestyle modification for the entire family and the patient in an age-appropriate manner. Physicians must encourage the development of team centric treatment options that involve collaboration with schools, parents, communities and government agencies to encourage healthy dietary habits and increased physical activity. To support physicians in this endeavor, Congress must identify opportunities that would encourage physicians to pursue additional counseling and eliminate expenses associated with preventive services. Physicians should receive incentives to follow-up with the patient after consultation and provide resources for physical activity and proper nutritional needs. In addition, physicians should measure weight and height in a standardized way and encourage early action by parents in response to an elevated BMI trajectory. Research has shown that early identification of trending overweight and early intervention by physicians and parents are more effective in children and adolescents.⁹

Community Involvement

Increased physical activity and overall community wellness is an important component of the prevention and treatment of pediatric obesity. A 2011 report from the National Academy of Science's Institute of Medicine recommended that parents, daycare workers and other preschool personnel limit the amount of time the child is sedentary and encourage outdoor physical activity from birth to age five.¹⁰ The CDC also recommends 60 minutes of moderate to vigorous physical activity daily. The "Communities Putting Prevention to Work" program, developed by the Department of Health and Human Services (HHS), was designed to mobilize local resources at the community-level. Through this program, communities are encouraged to introduce environmental changes that promote and allow walking and bicycling.

Governmental incentives could promote development of more grocery stores and increased access to fresh foods

in communities. Millions of low-income Americans live in “food deserts,” neighborhoods with an abundance of fast-food restaurants and convenience stores but lack convenient access to affordable and healthy food.¹¹ In addition; stores in low-income communities may stock fewer and lower quality healthy foods. Therefore, The Endocrine Society promotes convenient access to grocery stores and other retailers that sell a variety of healthy foods; prices that make healthy choices affordable and attractive; a range of healthy products available in the marketplace; and adequate resources for consumers to make healthful choices, including access to nutrition assistance programs to meet the special needs of low-income Americans.

Conclusions

Today’s children get a failing grade meeting physical and nutritional standards for healthy living. The CDC and other health agencies have provided guidelines for proper physical and nutritional routines to prevent pediatric obesity. In January 2011, the United States Department of Agriculture released its 2010 *Dietary Guidelines for Americans* that provided recommendations for healthy food consumption. Some new tips were to avoid oversized portions; make half your plate fruits and vegetables; and drink water instead of sugary drinks. Although resources for healthy habits are available, The Endocrine Society suggests that the cornerstone to successful modifications is public policy changes that allow for effective physician, parental, and societal interventions. There are few public policies that create, support, and provide environments for routine physical activity and access to healthful foods. Without a proper balance of physical activity, diet, and early interventions, pediatric obesity rates will continue to rise, leading to high adult obesity rates and comorbidities, reduced productivity, and increased medical expenditures. Immediate action must be taken to combat this epidemic and nurture a healthy society.

Positions

The Endocrine Society supports the implementation of policies that sustain a prevention care team that includes medical personnel, family, schools, and the community, to combat pediatric obesity. As such, The Endocrine Society recommends that the federal government:

- Increase research funding for new prevention and treatment options for childhood obesity.
- Enact legislation for better access to low-sugar,

high-fiber food and drinks in schools and communities.

- Ensure proper evaluation and treatment of overweight and obese patients and provide incentives for physicians to allow for a greater role in the care of these patients.
- Offer incentives for the development of communities that provide the opportunity for adequate and safe physical activity.
- Develop a council under the U.S. Department of Agriculture or in the Department of Health and Human Services made of physicians, nurses, registered dietitians, and business leaders to monitor industrial food development, commercialization, and nutrition in schools.

¹ Centers for Disease Control and Prevention: Overweight and Obesity Website, <http://www.cdc.gov/obesity/index.html>. Accessed February 2010.

² Johnson, R., Appel, L, Brands, M, et. al. AHA Scientific Statement. Dietary Sugars Intake and Cardiovascular Health A Scientific Statement From the American Heart Association. *Circulation* 2009; 120: 1011-1020.

³ Freedman DS, Mei Z, Srinivasan SR, Berenson GS, Dietz WH. Cardiovascular risk factors and excess adiposity among overweight children and adolescents: the Bogalusa Heart Study. *J Pediatr*. 2007 Jan;150(1):12–17.e2.

⁴ August, G. et al. Prevention and Treatment of Pediatric Obesity: An Endocrine Society Clinical Practice Guideline Based on Expert Opinion. *J. Clin. Endocrinol. Metab.* 2008; 93(12): 4576-4599.

⁵ American Psychological Association (2004). Report of the APA task force on advertising and children. Washington, DC: Author. Retrieved from <http://www.apa.org/pi/families/resources/advertising-children.pdf>.

⁶ Contento I, Balch GI, Bronner YL, et al. Nutrition education for school-aged children. *J Nutr Educ* 1995;27(6):298-311

⁷ Allensworth DD, Kolbe LJ. The comprehensive school health program: exploring an expanded concept. *J Sch Health* 1987;57(10):409-12.

⁸ Nancy Armour Do schools need more PE time to fight obesity? USA Today; June 22, 2009

⁹ Pryor, Laura E. MSc; Tremblay, Richard E. PhD; Boivin, Michel, PhD, et. al. Developmental Trajectories of Body Mass Index in Early Childhood and Their Risk Factors: An 8-Year Longitudinal Study. *Arch Pediatr Adolesc Med.* 2011; 165:906-912

¹⁰ Institute of Medicine of the National Academies. Early Childhood Obesity Prevention Policies. Website <http://www.iom.edu/Reports/2011/Early-Childhood-Obesity-Prevention-Policies.aspx>. Accessed October 2011.

¹¹ Let’s Move Campaign Website, <http://www.letsmove.gov/index.php>. Accessed September 2010