

Position paper

Preventing and treating adolescent obesity: A position paper of the Society for Adolescent Medicine

The high prevalence of obesity in adolescence is a serious public health concern. Longitudinal studies confirm that health consequences of obesity during adolescence track into adulthood, but that these consequences are reduced by successfully decreasing body fat among obese adolescents.

Decreasing the high prevalence of obesity requires involvement from all health care professionals with the recognition that this is a societal problem with causes and sequelae that also extend beyond the realms of individual and public health.

This position paper provides expert consensus and evidence wherever possible on strategies for effective prevention, treatment, research and advocacy. These views are summarized in the statements below:

Attaining and maintaining healthy energy balance is an important task of adolescence. Families, schools, and communities must assure that adolescents have the educational, dietary, and physical activity resources to pursue this task successfully. Health care professionals must be prepared to treat obesity and partner with community resources to facilitate normal growth and development and healthy psychosocial function.

Public and private third-party payers must reimburse health care providers adequately for services directed at the prevention, evaluation, and management of overweight and obesity during adolescence.

Research on the prevention, early intervention, and treatment of overweight and obesity during adolescence should assume high priority, given the high prevalence of obesity and its health consequences.

Obesity in adolescence is a common, serious health problem

A rising prevalence of overweight adolescents is seen worldwide [1]. In the United States the prevalence of overweight rose from 5% in the NHANES I (1971–1974) to 5.2% in NHANES II (1976–1980), but jumped to 12.8% in

NHANES III (1988–1994) and has continued to rise. The increase in the prevalence of obesity may result in a decrease in life expectancy for the first time in 200 years. Prevention, treatment, research, and advocacy of obesity need to involve health care professionals; however, obesity is a societal problem with causes and sequelae that extend outside individual and public health. [2]

Obesity is variously defined. Calculating a person's body mass index (BMI) (weight/height^2 [kg/m^2]) and comparing it to a reference population is a common method. In the United States, a person (2 to 20 years old) is considered "at risk for overweight" or "overweight" in comparison with a reference population (data from the second National Health And Nutrition Examination Survey [NHANES] 1976–1980) [3]. Adolescents above the 85th percentile are defined as at risk for overweight and those above the 95th percentile are defined as overweight. In the 1999–2000 NHANES survey [4], 31.9% of 12–19-year-olds (all ethnicities combined) were either at risk for overweight (14.8%) or overweight (16.1%). Several other international reference data sets are also used in establishing cut-off points to define overweight (above the 85th percentile) and obesity (above the 95th percentile). These include Cole [5] and the World Health Organization (WHO).

The term obesity will be used in this document to denote both being "at risk of overweight" (above the 85th percentile) and "overweight" (above the 95th percentile). If a work is cited that has used a different definition, that definition is provided.

Obesity (excess fat storage) arises from an imbalance between energy intake and expenditure. By adolescence the problem is particularly intractable if overeating is coupled with a lack of physical activity [6]. Medical sequelae invariably occur. Excessive fat storage and the impact this has on the development of medical complications vary through effects of genetic endowment. Being overweight increases the risk that youth will develop diabetes, dyslipidemia, hypertension, cardiovascular disease, sleep apnea, and other conditions that lead to early death [7]. The reproductive system, skeleton, and physical abilities are adversely affected by long-term conditions of excessive fat. In addition

to these serious medical sequelae, modernized societies tend to value thinness and socially discriminate against overweight people [8]. As a result of being overweight, self-esteem and overall quality of life can be decreased, with eating disorders occurring more commonly [9].

Prevention

Overeating and sedentary habits are promoted around the world by modern lifestyles. Adolescents are surrounded with opportunities for overeating, leading to over-consumption of highly processed foods that are high in fat, sugar, and energy content. Intakes of low energy, nutrient-dense foods, such as fruits and vegetables, are often consumed in less than recommended amounts [10]. At the same time, today's adolescents engage in more sedentary activity than adolescents of previous decades [11].

Effective prevention of excessive body fat includes educational and environmental strategies [12]. Health practitioners monitor adolescents' growth and development regularly. They can be trained to assess eating and physical activity habits and to recommend necessary modifications to adolescents and their families as a component of preventive care, especially when they find that poor habits are affecting normal healthy development. It is essential to raise these topics carefully and assess the teen's readiness to make behavioral changes before developing a plan of action. [13]

Families can learn to eat and exercise healthfully together. They may need guidance in making changes given scheduling pressures, the need to maintain developmentally appropriate parent-teen relationships, and the sensitivity of weight-related topics for adolescents. Parents can foster adequate, not restrictive or excessive, food consumption along with adequate, not excessive, exercise by their adolescents [1]. Efforts aimed at preventing overweight need to be congruent with adolescents' sensitivity to weight-related issues so as to avoid inadvertently evoking body dissatisfaction and/or unhealthy food-restricting behaviors [14,15]. Health care providers should encourage parents to examine their home environment to identify changes that can be made to facilitate healthier eating and physical activity behaviors while placing less focus on *body weight, shape and size*.

Schools, institutions, restaurants, and other businesses, as well as whole communities, can implement environmental strategies to promote the intake of healthful foods, limit access to unneeded food, and encourage healthy physical activity. They can promote the consumption of healthful foods such as fruits and vegetables by increasing their accessibility and attractiveness and offering them at reasonable prices. Fat- and sugar-filled foods and drinks can be served in moderation; they should not be sold to support schools and other institutions. Alternative healthy choices should be available in vending machines [16]. Modifications to communities can include safe settings for appropri-

ate physical activity by adolescents of all ages and both genders [17]. Bike paths, proper lighting, and youth-friendly recreational centers are examples of the community resources that contribute to adolescent health.

Treatment

Since 2000 there have been over 3000 scientific articles on adolescent obesity, including 192 published randomized control trials (PubMed search, December 2005).

For adolescents who are "at risk of being overweight," a variety of treatment programs have reported modest weight loss. For these adolescents (BMI between the 85th and 95th percentiles in the NHANES II data set), special diets [18–20] or medications [21,22] have been demonstrated to be helpful when they are used with behavioral therapy. However, prescribing very low calorie diets for "overweight" adolescents (over the 95th percentile in the NHANES II data set) is best done in controlled clinical trials.

The optimal treatment for maintaining weight loss over the long term has not been identified. Strategies for addressing low patient motivation and emotional obstacles to change must be defined. Data on the effectiveness of comprehensive weight management programs for adolescents, like Shapedown [23,24], WRAP [25–27], Healthworks [28], and Committed to Kids [29], are limited. Community and school programs often have dual goals of prevention and treatment, so the data are difficult to evaluate.

Therapies with pharmacologic agents or surgical intervention have been suggested for adolescents who are "overweight." Orlistat, a pancreatic lipase blocker, has been approved by the Food and Drug Administration (FDA) for use in adolescents 12–18 years old with BMI more than two units above the 95th percentile for age and gender [30]. In the United States, banding performed via laparoscopic surgery has not received FDA approval in those under 18 years old, whereas gastric bypass is being performed as part of a multi-center clinical trial. Whichever treatment is chosen, a multidisciplinary approach is necessary. Surgery should be restricted to large centers with experienced surgeons supported by multidisciplinary teams for adolescents with morbid obesity who have "failed" medical treatments [31]. Assessment of physiological status, comprehensive screening of patients and their families, and required education and counseling remain key factors in evaluating eligibility for surgery and identifying the optimal surgical approach [32,33].

It is the consensus view of treating clinicians that adolescent weight management programs should support overall health as well as optimal growth and development. Effective treatments help adolescents develop suitable food energy and nutrient intake. They address the cultural and social context along with the physical and psychological characteristics of adolescents and their families [34]. Healthy weight management programs promote body ac-

ceptance, provide psychosocial support for adolescents and their families, and prevent increases in weight above developmentally appropriate levels. Short-term goals and consequent rewards are linked to changing eating and exercise behaviors as well as improving self-esteem [35].

Health and body composition improve when adolescents adjust their eating and physical activity to more closely fit their body requirements, even if total body weight cannot be significantly altered.

Health care workers must be reimbursed adequately for evaluating adolescents for overweight and obesity and for implementing prevention and management strategies in accordance with established recommendations. Given the prevalence of obesity in financially disadvantaged communities, it is imperative that programs at low cost or no cost be accessible to these communities in the United States and other countries where government-sponsored health systems exist.

Research, development and advocacy

To reduce the high prevalence of obesity among adolescents, effective prevention and treatment programs will need to be further developed, evaluated and implemented [10].

Prevention and treatment of adolescent obesity require the development of partnerships between clinicians and community resources to address the societal causes of adolescent obesity and the impact of this epidemic on the current generation of youth.

Research activities will have to be adequately financed. Prevailing attitudes toward food and physical activity, and how to incorporate them into daily life, will need to change. Eating and exercise facilities will have to be modified to allow behavior to match the new attitudes [36]. All adolescent health care advocates will have to work assertively to achieve the needed change. It is clearly imperative to invest in the prevention and treatment of overweight in adolescents rather than expending human and monetary resources to treat debilitating obesity-related disorders arising early in life.

Guidelines for the use of surgical interventions need to be developed and surgery offered in conjunction with clinical trials as discussed above.

Conclusions

The problems of excessive fat storage during adolescence need to be prevented and treated in accordance with current research and expert consensus. Additional prevention and treatment strategies must be developed and applied. Resources of time, money and energy will need to be invested at every level of private and public life to support changes in attitudes, behavior, and the environment in which we live if we are to decrease the prevalence of

obesity in adolescents. Organizations and people devoted to adolescent health will need to work together to accomplish the goals outlined in this Position Statement.

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