

Children and Adolescent Obesity: A Winning Way to Fight This 'Losing Battle'

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Abstract: Obesity in children and adolescents is increasing at an alarming rate. While this problem gets plenty of news coverage, in the last two decades the obesity numbers continue to grow, doubling in children and tripling in adolescent. The research indicates a number of physical ramifications of early onset obesity in adolescents and children including: elevated blood pressures, type 2 diabetes, higher cholesterol levels, sleep apnea and musculoskeletal problems. There are multiple factors that influence this growing rate of adolescent and teen obesity. The most influential include current eating habits of this age group, increased soft drink consumption, increased television viewing, and reduced physical activity. While the American Academy of Pediatricians is working hard to guide healthcare professionals, new programs must be developed to include a behavioral approach to weight loss that includes both dietary modification and exercise. Successful programs must also include parent involvement, daily accountability for food choices and exercise, as well as decreased television computer and video time. Studies have concluded that behavioral weight loss interventions in this age group can be successful, and long term results must continue to be monitored as the healthcare community becomes more involved in the fight against adolescent and teen obesity.

Introduction

With over 16% of America's adolescents and teens overweight and now over 10% of our pre-school children (2-5 years of age) overweight, the United States is in the midst of a growing epidemic that has significant ramifications in terms of our current and future health. The increase in medical complications related to adolescent and teen obesity are of increasing concern and include a rise in cardiovascular risk factors such as abnormal glucose tolerance, hyperlipidemia, and elevated blood pressure and increased risk for hypertension, diabetes, gallbladder disease and some cancers.

Child and Adolescent Obesity Facts:

- Childhood obesity is one of the most pressing health problems facing the country. While the rates were relatively stable in the 1960s and 1970s at around 5% for both children and adolescents, they increased rapidly in the 1980s and 1990s. In the last two decades, obesity rates doubled in children and tripled in adolescents.¹
- Children's diets are poor. They are too high in calories, saturated fat, refined sugar and salt and too low in fruits, vegetables, whole grains and calcium. Rates of obesity, as well as type 2 diabetes, in children are rising rapidly.²
- The negative health consequences of obesity are already evident in children. Sixty percent of overweight children suffer from high blood pressure, high blood cholesterol levels and /or high levels of insulin in the blood (a precursor to diabetes). One-quarter of children ages 5 to 10 years old have high blood pressure, elevated cholesterol levels or other early warning signs for heart disease.³
- The rate of new cases of type 2 diabetes in adolescents increased 10-fold between 1982 and 1994.⁴
- 1979 - 1999, annual hospital costs for treating obesity-related diseases in children rose three-fold; \$35 million- \$127 million.⁵

The underlying cause for this rise in obesity of children and adolescents is multifactorial. Weight control involves good food choices and regular physical activity to balance caloric intake and expenditures. However, children eat over a third of their total caloric intake away from home, most commonly at fast food restaurants.⁶ They typically eat almost twice as many calories when they eat at a restaurant (770 calories per meal) compared to home meals (420 calories per meal).⁷ Additionally, soft drink consumption by children has increased over 40% in the past 15 years. Children who drink soft drinks consume more calories than those who do not drink them, and they are more likely to gain weight and become overweight.⁸ Increased television viewing has also been associated with overweight adolescents and children and linked to decreased physical activity and unhealthy dietary behavior.⁹ This represents a modifiable cause of childhood obesity. It is estimated that children watch more than 10,000 food commercials per year. These commercials often foster poor food choices and eating patterns.¹⁰

Despite obesity having strong genetic determinants, the genetic composition of the population does not change rapidly. Therefore, the large increases in obesity must reflect major changes in non-genetic factors such as those mentioned above. The health risks related to obesity in children and adolescents are truly alarming. Sixty percent of overweight children suffer from high blood pressure, high blood cholesterol and high insulin levels.¹¹ The prevalence of sleep apnea among obese children and adolescents occurs in greater than 7% of obese children.¹² Sixty six percent of adolescent patients treated with Blount's disease are obese and between 30-50% of patients with slipped capital femoral epiphysis are classified as overweight or obesity.^{13,14}

The American Academy of Pediatricians has written a child obesity policy which includes multiple recommendations for dealing with the growing problem. These recommendations include:

1. Identifying and tracking patients at risk by virtue of family history, birth weight, socioeconomic, ethnic and cultural and environmental factors.
2. Annual calculation and plotting of Body Mass Index (BMI) once per year in all children and adolescents.
3. Utilization of changes in BMI to identify rate of excessive weight gain relative to linear growth.
4. Routine promotion of physical activity including unstructured play.
5. Limitation of television and video time to maximum of two hours per day.
6. Encouragement of parents and caregivers to promote healthy eating patterns.¹⁵

As a response to the rising concern regarding the health risks and increased costs of child and teen obesity, there is a need for effective programs to address these problems.

Evidence has shown that education alone is not enough to establish more healthful eating habits and exercise/ activity patterns.¹⁶ Behavioral interventions for promoting healthful lifestyles have proven to be the most successful with dietary and activity changes presented within the framework of setting concrete and measurable goals that are reinforced with daily tracking of desired behaviors. There is compelling evidence for using a comprehensive behavioral intervention for treating overweight children. One hundred and fifty-four overweight children from 6-12 years of age were followed for 6 months while involved in a family based treatment program. Thirty four percent of the children maintained a reduction in percentage of weight loss and 30% were no longer overweight at 10 years.¹⁷

Successful intervention programs include a cognitive and behavioral approach that addresses each area that has been shown to be effective in long term results weight loss results for adolescents and teens. These programs include parent involvement, educational components on exercise and dietary, health lifestyle contracts, daily accountability for food choices and exercises as well as TV/Computer/ Video time and online contact with the family to increase communication and adherence. Studies conclude that weight loss approaches including both diet and exercise have approximately a 1.9 kg greater weight loss than diet only.¹⁸ For example, the Physicians' Choice For Adolescent and TeensSM program in Florida includes all essential elements including an exercise component at a clinical level as well as utilizing pedometers to measure the steps taken each day. Studies examining the use of pedometers to count the number of steps taken each day with goals set to increase activity levels to specific amount of steps each day have been associated with a decreased incidence of obesity, a decrease in blood pressure and blood glucose levels.¹⁹ This program and other sample behavioral weight intervention programs are summarized in *Table 1*. (p.49, bottom)

The fight against obesity of children and adolescents is just beginning. It is expected that this problem will continue to escalate over the next decade. Health care providers must take a proactive approach to this growing problem. Through program development, research and commitment, the prevalence of overweight and obese teen and adolescents should decrease. With innovative programs like those listed in Table 1 and many others, adopting healthy lifestyle changes can become a life long commitment for both parents and children. Parents and health care providers must strive to provide a conducive environment for healthy eating and activity as well as becoming better role models for improved health.

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POP Educates Students about Fitness and Nutrition

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The startling rise in juvenile cases of type 2 diabetes prompted the Jacksonville based American Association of Clinical Endocrinologists (AACE) to develop the Power of Prevention Through Fitness and Nutrition (POP), a plan to help educate elementary school children about the importance of fitness and nutrition.

The POP presentation teaches students about exactly how certain foods impact their body. They also learn how exercise changes the way the body consumes food. The presentation is usually given by an AACE member, but AACE has developed a train-the-trainer program to help enable any teacher, doctor, or even concerned parent to give the presentation. Each student who participates in the POP program receives a pedometer to keep track of the number of steps they take every day.

But the POP program doesn't stop there. An entire week's worth of curriculum is available for teachers to continue the healthy living education beyond the presentation. Since the program launch in 2004, POP has reached more than 35,000 students.

Nationally, POP is officially partnered with the President's Council on Physical Fitness and Sports, Action for Healthy Kids, and Parents' Action for Children. The POP program gives students the tools they need to complete the President's Active Lifestyle Award.

This fall AACE worked with the Jacksonville Children's Commission on a plan to implement the Power of Prevention into the group's after school program. On October 9, 2006, AACE and the Jacksonville Children's Commission launched the Walking Club at Reynolds Lane. Pediatric Endocrinologist Jose A. Canas, MD, a DCMS and an AACE member, gave the POP presentation to the students, who were then given pedometers and a walking diary. Then the students went outside to walk. The school doesn't have a track, but the administration fashioned one out of the bus pickup roundabout. The students just walked and ran for nearly an hour. The Walking Club will walk 3 times a week for 20 minutes at a time. That's more exercise than many of these students would normally get in an entire week.

Reynolds Lane is the first of 5 schools to pilot the Walking Club program. If this is successful, the Jacksonville Children's Commission will implement POP and the Walking Club into all 23 schools it services. The program has captured the attention of the Duval County Schools Obesity Council, who has invited AACE to be an active partner of the group. The group hopes to utilize AACE to help provide obesity education to the district's more than 160 schools and 130,000 students.

If you are concerned about the rising incidence of obesity in Northeast Florida, AACE invites you to learn more about POP at www.powerofprevention.com. To download the presentation materials go to <http://www.powerofprevention.com/pop/teachersdownload.php>.

The Physicians' Choice For Adolescents & Teens SM (Research based program started in Florida)	Exercise component at a clinical level that utilizes pedometers and other means Lifestyle improvement focus on sensible eating and physical fitness	Designed by a physical therapist/over-seen by a registered dietician, pediatric physician and professors of Health Education & Physiology and Kinesiology
Committed to Kids (Originated at Louisiana State University)	Increased physical activity for child and nutritional education for family Behavioral based approach to lifestyle changes needed to achieve a healthier weight	Supervised by youth fitness trainers, social workers and/or registered clinicians
Shapedown (Developed at University of California, San Francisco School of Medicine)	Addresses underlying factors that contribute to adolescent and teen obesity Behavioral intervention with children and parents to address adolescent obesity	Developed with input from nutritionists, exercise physiologists, endocrinologists and family medicine specialists
Power of Prevention (Developed by the American Association of Clinical Endocrinologists/AACE. Targets elementary aged children)	Physical activity emphasis using pedometers, Walking Clubs and other means Works with children and families on nutrition changes	Operated in partnership with a public school, individual classroom teachers and an endocrinologist