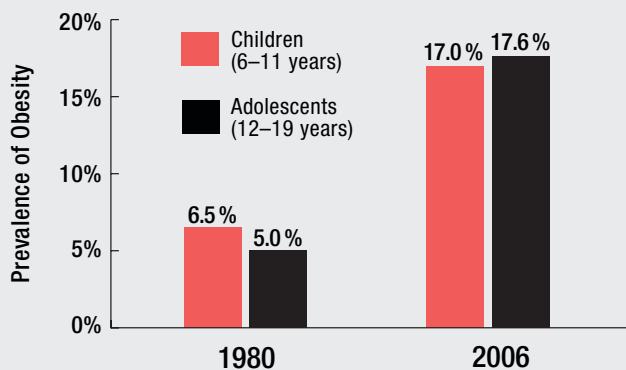


The Role of Obesity in the Development of Cardiovascular Disease Risk Factors and Related Preventive Measures: Project HeartBeat!

The following is a synopsis of an article published in the July supplement of the *American Journal of Preventive Medicine*.

What is the problem?

- ▶ Childhood obesity* is now linked to heart disease later in life. The rate of obesity among children 6 to 11 years of age has more than doubled over the past 25 years, going from 6.5% (1976–1980) to 17.0% (2003–2006). The rate among adolescents 12 to 19 years of age more than tripled in the same period, increasing from 5.0% to 17.6%.¹



- ▶ The combined effects of an unhealthy diet, too little physical activity, and obesity all contribute to high blood pressure and high cholesterol in childhood.²
- ▶ Even as early as adolescence, high blood pressure, high cholesterol, and smoking can cause atherosclerosis (“hardening of the arteries”) that increases in extent and severity over time, laying the groundwork for future heart attacks and strokes.³

What did researchers study?

- The changes in blood lipids (fats in the blood), blood pressure, and development of cardiac structure and function as growth processes in children and adolescents.

What did researchers find?

- Changes in the levels of blood pressure and blood lipids over time differ by age, sex, and race/ethnicity and are influenced by body fatness. These risk factors need to be monitored and evaluated in childhood and adolescence.
- Although body mass index (BMI) is a useful measure for defining obesity in childhood and adolescence, an increasing BMI may also be a reflection of increases in lean body mass and not only fat mass. Therefore, other measures, (e.g., skin-fold thickness, waist circumference, waist/hip ratio) in addition to BMI, may be helpful in evaluating body fatness.

Applying the Science

DHDSP States/Partners

- Be aware of and promote implementation of clinical guidelines for evaluating children and adolescents for cardiovascular disease (CVD) risk factors, such as high levels of blood lipids or high blood pressure—particularly in overweight or obese children.
- Partner with state Nutrition & Physical Activity Programs and Coordinated School Health Programs to promote the use of these guidelines and identify strategies that will be most effective in promoting physical activity and nutrition among young people.
- Include risk-factor monitoring, detection, and management, as well as the prevention of obesity in children and adolescents, in medical home models.

Policymakers

- Reinforce awareness and adherence to practice guidelines regarding evaluation of blood lipids and blood pressure in children and adolescents, particularly in overweight or obese children.
- Implement interventions to include risk-factor monitoring, detection, management, as well as prevention of obesity, in children and adolescents.
- Implement high-quality courses in schools related to physical education and health education, and increase the opportunities for students to engage in physical activity.
- Implement a quality school meals program and provide students with appealing, healthy food and beverage choices outside of the school meals program.

Health care providers

- Be aware of childhood guidelines for high blood pressure and high cholesterol, and treat these conditions if they exist.
- Counsel parents of obese children about high blood pressure and high cholesterol prevention.

Families

- Be aware that heart disease prevention begins in childhood. Overweight and obese children are more likely to develop high blood pressure and high cholesterol earlier in life, laying the groundwork for CVD.
- Ask your doctor about preventing, or reversing, excess weight during childhood and adolescence and, if necessary, controlling weight to prevent or reverse high blood pressure or cholesterol.
- Encourage your children to be physically active. Engage in physical activities that involve the entire family.
- Find out which snacks and drinks are available in your child's school cafeteria, stores, vending machines, and during classroom and after-school activities, and work to make sure there are healthy choices.

*Obesity is defined as a BMI at or above the 95th percentile for children of the same age and sex.

**Overweight is defined as a BMI at or above the 85th percentile and lower than the 95th percentile.

¹Ogden CL, Carroll MD, Flegal KM. High body mass index for age among U.S. children and adolescents, 2003–2006. *JAMA*. 2008;299(20):2401–2405.

²Kavey R-EW, Daniels SR, Lauer RM, Atkins DL, Hayman LL, Taubert K. 2003. American Heart Association guidelines for primary prevention of atherosclerotic cardiovascular disease beginning in childhood. *Circulation*. 107;1562–1566.

³Strong JP, Malcom GT, McMahan CA, et al. Prevalence and extent of atherosclerosis in adolescents and young adults: Implications for prevention from the Pathobiological Determinants of Atherosclerosis in Youth Study. *JAMA*. 1999;281:727–735.

