

OBESITY IS ONE OF THE GREATEST HEALTH CHALLENGES OF OUR TIME

A 2005 CDC study estimated that approximately 112,000 deaths are associated with obesity each year in the United States, making obesity the second leading contributor to **premature death**.¹ It is equivalent to a jetliner full of 300 people crashing every day.

Obesity rates have doubled in adults and tripled in children and adolescents over the last two decades.

- Two-thirds (66%) of American adults are seriously overweight or obese.²
- One in five young people are obese and one in three are overweight.³
- Obesity increases the risk of heart disease, high blood pressure, diabetes, arthritis-related disability, and cancer.4



Diabetes: Obesity's Twin Epidemic

Type 2 diabetes is no longer called "adult onset" diabetes because of rising rates in children. One in three Americans born in 2000 will develop diabetes in their lifetime.⁵

Most (90-95%) of diabetes is type 2 diabetes, which is closely linked to diet and weight. Between 50% and 80% of diabetes cases are associated with unhealthy eating patterns and sedentary lifestyles.⁶

Through physical activity and healthy eating, the onset of type 2 diabetes was reduced by 60% in at-risk individuals.⁷ (By comparison, the diabetes drug metformin reduced the onset of type 2 diabetes by only 30%).



Diabetes on the Rise (millions of Americans)

Unhealthy Eating Is a Leading Cause of Premature Death

- Americans are eating more calories. According to national surveys, men on average consumed 168 more calories per day in 2000 than in 1971 and women consumed 335 more calories per day in 2000 than in 1971.⁸
- Much of our nation's disease burden is preventable. Approximately 70% of premature deaths are caused by poor nutrition, physical inactivity, and tobacco use.^{9,10}
- Diet and inactivity are cross-cutting risk factors, contributing significantly to four out of six leading causes of death.¹¹

Cause of Death ¹¹	# Deaths	Cause of Death	# Deaths
1. Heart Disease	652,091	9. Nephritis	43,901
2. Cancer	559,312	10. Septicemia	34,136
3. Stroke	143,579	11. Suicide	32,637
4. Chronic Lower Respiratory Diseases	130,933	12. Chronic Liver Disease/Cirrhosis	27,530
5. Accidents	117,809	13. Hypertension	24,902
6. Diabetes	75,119	14. Parkinson's Disease	19,544
7. Alzheimer's Disease	71,599	15. Homicide	18,124
8. Influenza and Pneumonia	63,001		

Poor Diet and Physical Inactivity Contribute to the Leading Causes of Disability among Americans

- Chronic, disabling conditions cause major limitations in activity for more than 25 million people.¹²
- Each year, 12,000 to 24,000 people with diabetes become blind, almost 150,000 receive treatment for kidney failure, and 82,000 undergo diabetes-related lowerextremity amputations.¹³
- Stroke is a leading cause of serious longterm disability. 2.2 million Americans have disabilities resulting from high blood pressure.¹⁴
- Most hip fractures are caused by osteoporosis.¹⁵ Of people over age 50 who fracture a hip, 24% die within one year and 20% require long-term care.¹⁵

Number of Americans Affected by Diseases to
which Diet and Inactivity Are Major Contributors

Overweight/Obese ¹⁴	142,000,000
High Blood Pressure ¹⁴	73,000,000
Diabetes ¹⁶	17,800,000
Coronary Heart Disease ¹⁴	16,000,000
Cancer ¹⁷	11,000,000
Osteoporosis ¹⁵	10,000,000
Stroke ¹⁴	5,800,000
Coronary Heart Disease ¹⁴ Cancer ¹⁷ Osteoporosis ¹⁵ Stroke ¹⁴	16,000,000 11,000,000 10,000,000 5,800,000

Poor Diet and Physical Inactivity Are Causing "Adult" Diseases in Children

Because of the rising obesity rates, this may be the first generation of children who live shorter lives than their parents.¹⁸

25% of children ages 5 to 10 years have a relatively high cholesterol, high blood pressure, or other early warning sign for heart disease.¹⁹ Autopsy studies of teenagers and young adults have shown that one in ten had advanced fibrous plaques in their arteries.¹⁸

As the number of young people with type 2 diabetes increases, diabetic complications like limb amputations, blindness, kidney failure, and heart disease will develop in more people of younger ages (likely in their 30s and 40s).



 Physical Health Glucose intolerance and insulin resistance Type 2 diabetes High blood pressure High cholesterol Hepatic steatosis Cholelithiasis (gallstones) Sleep apnea Menstrual abnormalities Impaired balance Orthopedic problems 	d Social Health steem ody image d bullying tereotyping ion ginalization

The Consequences of Childhood Obesity²⁰

- According to the U.S. Department of Agriculture (USDA), children (2 to 18 years) consumed an average of **118 more calories per day in 1996 than they did in 1978.**²¹ (An extra 118 calories per day, if not compensated for through increased physical activity, would translate into an average of 12 pounds of extra weight gain per year.)
- Over two-thirds of all foods consumed by school children are foods that are recommended for occasional consumption.²²
- Only 30% of children attend daily physical education classes.²³

Children and Soft Drinks

While obesity is a complex, multi-factorial problem, soft drinks play a key role. **Children who consume more soft drinks consume more calories (about 55 to 190 per day)** than kids who drink fewer soft drinks^{24, 25} and are more likely to become overweight.²⁶

- Sodas and fruit drinks are the biggest single source of calories and added sugars in the diets of teenagers.²⁷
- Increases in children's calorie intake during the 1990s were driven by increased intakes of foods and beverages high in added sugars.²⁸
- A study conducted by the Harvard School of Public Health found that for each additional serving of soda or juice drink a child consumes per day, the child's chance of becoming overweight increases by 60%.²⁹
- A health-education program encouraging elementary school students to decrease soft drink consumption reduced rates of overweight and obesity.³⁰
- Consumption of soft drinks can displace healthier foods from children's diets, like low-fat milk, which can help prevent osteoporosis.^{27,28,31,32,3}
- As teens have doubled or tripled their consumption of soft drinks, they have cut their consumption of milk by more than 40 percent.³⁴



Boys' and girls', aged 12-19, average daily consumption of milk and soft drinks (oz.)³⁴

The Costs of Diet, Inactivity, and Obesity-Related Diseases Are Borne by Individuals, Businesses, and Governments

Costs of Diseases to which Diet and Inactivity Are Major Contributors*

Cancer ³⁵	\$219 Billion
Diabetes ³⁶	\$174 Billion
Coronary Heart Disease ¹⁴	\$156 Billion
Obesity ³⁷	\$123 Billion
High Blood Pressure ¹⁴	\$66 Billion
Stroke ¹⁴	\$57 Billion
*Estimates of annual direct + i	indirect costs.
**Figure includes direct costs	only.

 The total U.S. health-care costs due to obesity were \$123 billion in 2003.³⁷ Half of direct medical expenditures was paid through Medicare and Medicaid.³⁸

- According to a 1999 estimate by the USDA, healthier diets could prevent at least \$87 billion per year in medical costs, lost productivity, and lost lives.³⁹
- CDC estimates that if all physically inactive Americans became active, we would save \$55 billion (2008 dollars) in annual medical costs.⁴⁰
- Health care spending is expected to rise by 25% by 2030, due to the aging of the American population. Chronic diseases are responsible for more than 75% of health-care costs.¹²
- From 1979 to 1999, annual hospital costs for treating obesity-related diseases in children rose three-fold (from \$35 million to \$127 million).⁴¹

- Obesity increases inpatient and ambulatory health care costs by \$395 per person per year -- more than smoking or problem drinking.⁴²
- Diet- and inactivity-related diseases increase costs to businesses. Medical costs of General Motors employees increased from \$2,225 to \$3,753 per year with increasing body mass index (BMI) of the employee.⁴³
- Because of the extra weight that Americans gained over the last decade, the airline industry spends an additional \$275 million a year on jet fuel.⁴⁴
- The average health-care costs for a person with diabetes are more than \$13,000 per year compared to \$2,500 for a person without diabetes.⁴⁵
- Employers pay an average of \$4,410 more per year for employee beneficiaries who have diabetes than for beneficiaries who do not have diabetes. ⁴⁶

Federal Medicaid & Medicare Costs, 2000⁴⁷

Disease	Cost
Heart Disease	\$43.1 billion
Cancer	\$18.8 billion
Diabetes	\$14.5 billion
Stroke	\$7.0 billion

References

1. Flegal KM, et al. "Excess Deaths Associated with Underweight, Overweight, and Obesity." *Journal of the American Medical Association* 2005, vol. 293, pp. 1861-1867.

2. Ogden C, et al. "Prevalence of Overweight and Obesity in the United States, 1999-2004." *Journal of the American Medical Association* 2006, vol. 295, pp. 1549-1555.

3. Ogden, C, et al. "High Body Mass Index for Age among US Children and Adolescents, 2003-2006." *Journal of the American Medical Association* 2008, vol. 299, pp. 2401-2405.

4. U.S. Department of Health and Human Services. *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity 2001*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General, 2001.

5. Narayan KMV, et al. "Lifetime Risk for Diabetes Mellitus in the United States." *Journal of the American Medical Association* 2003, vol. 290, pp. 1884-1890.

6. Hu F, et al. "Diet, Lifestyle, and the Risk of Type 2 Diabetes Mellitus in Women." *The New England Journal of Medicine* 2001, vol. 345, pp. 790-797.

7. Knowler W, et al. "Reduction in the Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin." *New England Journal of Medicine* 2002, vol. 346, pp. 393-403.

8. Centers for Disease Control and Prevention (CDC). "Trends in Intake of Energy and Macronutrients – United States, 1971-2000." *MMWR* 2004, vol. 53, pp. 80-82.

9. McGinnis JM, Foege WH. "The Immediate vs. the Important." *Journal of the American Medical Association* 2004, vol. 291, pp. 1263-1264.

10. McGinnis JM, Foege WH. "Actual Causes of Death in the United States." *Journal of the American Medical Association* 1993, vol. 270, pp. 2207-2212.

11. Kung HC, Hoyert DL, XU JQ, Murphy SL. *Deaths: Final Data for 2005: National Vital Statistics Reports*; \vol. 56, no. 10. Hyattsville, MD: National Center for Health Statistics, 2008.

12. Centers for Disease Control and Prevention (CDC). *Chronic Disease Overview*. Atlanta, GA: CDC, 2008. Accessed at http://www.cdc.gov/NCCdphp/overview.htm on October 31, 2008.

13. American Diabetes Association. *Complications of Diabetes in the United States*. Alexandria, VA: ADA, 2008. Accessed at <www.diabetes.org/diabetes-statistics/complications.jsp> on November 12, 2008.

14. American Heart Association (AHA). *Heart Disease and Stroke Statistics -- 2008 Update At-A-Glance*. Dallas, TX: AHA, 2008. Accessed at

http://www.americanheart.org/downloadable/heart/1200078608862HS_Stats%202008.final.pdf> on October 31, 2008.

15. National Osteoporosis Foundation. *Osteoporosis Disease Statistics: Fast Facts*. Accessed at http://www.nof.org/osteoporosis/diseasefacts.htm#cost on October 24, 2008.

16. American Diabetes Association. *All About Diabetes*. Alexandria, VA: ADA, 2008. Accessed at http://www.diabetes.org/about-diabetes.jsp on October 30, 2008.

17. American Cancer Society (ACS). *Cancer Facts and Figures 2008.* Atlanta, GA: ACS, 2008. Accessed at http://www.cancer.org/downloads/STT/2008CAFFfinalsecured.pdf> on October 30, 2008.

18. Olshansky SJ, et al. "A Potential Decline in Life Expectancy in the United States in the 21st Century." *New England Journal of Medicine* 2005, vol. 352, pp. 1138-1145.

19. Freedman DS, et al. "The Relation of Overweight to Cardiovascular Risk Factors Among Children and Adolescents: The Bogalusa Heart Study." *Pediatrics* 1999, vol. 103, pp. 1175-1182.

20. Institute of Medicine. Preventing Childhood Obesity: Health in the Balance. Washington, DC: National Academies Press; 2005.

21. Nielsen S, Seiga-Riz AM, and Popkin B. "Trends in Energy Intake in U.S. between 1977 and 1996: Similar Shifts Seen Across Age Groups." *Obesity Research* 2002, vol. 10, pp. 370-378.

22. Food and Nutrition Service, U.S. Department of Agriculture. *Diet Quality of American School-Age Children by School Lunch Participation Status: Data from the National Health and Nutrition Examination Survey, 1994-2004.* Alexandria, VA: FNS, 2008.

23. Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services. *Trends in the Prevalence of Selected Risk Behaviors for All Students National YRBS: 1991—2007.* Atlanta: CDC, 2007. Accessed at http://www.cdc.gov/HealthyYouth/yrbs/index.htm on October 25, 2008.

24. Harnack L, et al. "Soft Drink Consumption among U.S. Children and Adolescents: Nutritional Consequences." *Journal of the American Dietetic Association* 1999, vol. 99, pp. 436-441.

25. Guenther PM. "Beverages in the Diets of American Teenagers." *Journal of the American Dietetic Association* 1986, vol. 86, pp. 493-499.

26. Berkey C, Rockett H, Field A, Gillman M, and Colditz G. "Sugar-Added Beverages and Adolescent Weight Change." *Obesity Research* 2004, vol. 12, pp. 778-788.

27. Murphy M, Douglass J, Latulippe M, Barr S, Johnson R, Frye C. "Beverages as a Source of Energy and Nutrients in Diets of Children and Adolescents." *Experimental Biology* 2005, Abstract #275.4.

28. Gleason P and Suitor C. *Food for Thought: Children's Diets in the 1990s.* Princeton, NJ: Mathematica Policy Research, Inc., 2001.

29. Ludwig DS, et al. "Relation between Consumption of Sugar-Sweetened Drinks and Childhood Obesity: A Prospective, Observational Analysis." *Lancet* 2001, vol. 357, pp. 505-508.

30. James J, Thomas P, Cavan D, and Kerr D. "Preventing Childhood Obesity by Reducing Consumption of Carbonated Drinks: Cluster Randomised Controlled Trial." British Medical Journal 2004, Online First, published April 23, 2004.

31. Ballew C, Kuester S, Gillespie C. "Beverage Choices Affect Adequacy of Children's Nutrient Intakes." *Archives of Pediatric and Adolescent Medicine* 2000, vol. 154, pp. 1148-1152.

32. Bowman SA. "Diets of Individuals Based on Energy Intakes from Added Sugars." *Family Economics and Nutrition Review* 1999, vol. 12, pp. 31-38.

33. Lewis CJ, Park YK, Dexter PB, Yetley EA. "Nutrient Intakes and Body Weights of Persons Consuming High and Moderate Levels of Added Sugars." *Journal of the American Dietetic Association* 1992, vol. 92, pp 708-713.

34. Harnack L, University of Minnesota. Pers. comm. Sept. 22, 1998. Data comes from U.S. Department of Agriculture Nationwide Food Consumption Survey 1977-78 and Continuing Survey of Food Intakes by Individual 1994–96.

35. American Cancer Society (ACS). *Costs of Cancer*. Atlanta, GA: ACS, 2008. Accessed at http://www.cancer.org/docroot/MIT/content/MIT_3_2X_Costs_of_Cancer.asp on October 31, 2008.

36. American Diabetes Association. "Economic Costs of Diabetes in the U.S. in 2007." *Diabetes Care* 2008, vol. 31, pp. 1–20.

37. Endocrine Society and Hormone Foundation. *The Endocrine Society Weighs In: A Handbook on Obesity in America*. Chevy Chase, MD: Obesity in America, 2005. Accessed at http://www.obesityinamerica.org/links/HandbookonObesityinAmerica.pdf> on September, 2008.

38. Finkelstein EA, Fiebelkorn IC, Wang G. "State-level Estimates of Annual Medical Expenditures Attributable to Obesity." *Obesity Research* 2004, vol 12, pp. 18–24.

39. Frazao E. "High Costs of Poor Eating Patterns in the United States." In *America's Eating Habits: Changes and Consequences*. Edited by Elizabeth Frazao. Washington, D.C.: Economic Research Service, U.S. Department of Agriculture, 1999. Agriculture Information Bulletin No. 750, pp. 5-32. [Numbers adjusted for inflation from 1987 to 2009 dollars].

40. Pratt M, Macera CA, Wang G. "Higher Direct Medical Costs Associated with Physical Inactivity." *The Physician and Sportsmedicine* 2000, vol. 28, pp. 63-70. [Numbers adjusted for inflation from 1987 value].

41. Wang G, Dietz W. "Economic Burden of Obesity in Youths Aged 6-17 Years: 1979-1999." *Pediatrics* 2002, vol. 109, pp. e81.

42. Sturm R. "The Effects of Obesity, Smoking, and Drinking on Medical Problems and Costs." *Health Affairs* 2002, vol. 21, pp. 245-253.

43. Wang F, et al. "The Relationship between National Heart, Lung, and Blood Institute Weight Guidelines and Concurrent Medical Costs in a Manufacturing Population." *American Journal of Health Promotion* 2003, vol. 17, pp. 183-189.

44. Dannenberg AL, et al. "Economic and Environmental Costs of Obesity: The Impact on Airlines." *American Journal of Preventive Medicine* 2004, vol. 27, pp. 264.

45. Gerberding, J, Centers for Disease Control and Prevention. Letter to Mr. Eric Hargis, Chair, Research to Prevention Coalition, May 18, 2006.

46. Ramsey S, et al. "Productivity and Medical Costs of Diabetes in a Large Employer Population." *Diabetes Care* 2002, vol. 25, pp. 23-29.

47. National Institutes of Health (NIH), Office of the Director, U.S. Department of Health and Human Services. *Disease-Specific Estimates of Direct and Indirect Costs of Illness and NIH Support*. Bethesda, MD: NIH, 2000.