

Childhood Obesity

Issue #2

Winter 2005

Childhood obesity has become an epidemic in the United States during the past 25 years. According to the American Heart Association (AHA), twice as many children and three times as many teens are overweight today than in the 1980s.¹ Currently, about 20 percent of children are considered obese. The abundance of obese children (ages 6 to 11) at the 95th percentile of Body Mass Index (BMI) was 15.3 percent for 1999-2000, 11.0 percent for 1988-1994, and 7.0 percent for 1976-1980. For adolescents (ages 12 to 19) the 95th percentile BMI was 15.5 percent for 1999-2000, 11.0 percent for 1988-1994, and 5.0 percent for 1976-1980.² The BMI is equal to the weight, divided by the square of the height. Obesity has surged to 54 percent among U.S. children and 40 percent among U.S. adolescents since 1960. Ten-year-old children weighed about 11 pounds more in 1995 than in 1973; this was not accompanied by a change in height.³

This epidemic of childhood obesity is an harbinger of an epidemic of type 2 diabetes.⁴ In addition to diabetes, other physical concerns include liver disease, orthopedic problems, obstructive sleep apnea, asthma, and early menarche (a risk factor for breast cancer).⁵ Sleep apnea can lead to problems with memory and learning.⁶ This condition of obesity is threatening to overturn the trend in increasing life expectancy in America.⁷

The American obesity epidemic is costing billions in annual health-care dollars. According to the National Conference of State Legislators, obesity-related

medical expenses surpassed \$75 billion in 2003.⁸

Human genetics and biology do not change rapidly enough to explain the surging obesity rates.⁹ Seventy-seven percent of adults attribute American youth obesity to parents.¹⁰ The causes of the obesity epidemic may be rooted in our societal evolution leading to stress, time limitations, and dietary ambivalence. The increase in childhood obesity cases can be mainly attributed to sedentary lifestyles and unhealthy diets.

Sedentary Lifestyles

The physical-activity level of children and youth has been on the downturn in current years. Exercise has been hampered due to more time allocated to television; sedentary pastimes like the Internet and video games; and the reduction or elimination of school physical education programs due to budgeting considerations.¹¹ As physical activity has lessened, body weights have grown.

Nearly 50 percent of children (ages 8 to 16) watch four or more hours of television each day. According to *Time Magazine* in June 2004, for every hour of television a child averages a day, the threat of obesity increases by 6 percent.¹²

The AHA reports that only 8.0 percent of elementary schools, 6.4 percent of middle-grade schools, and 5.8 percent of senior high schools provide the suggested amount of physical activity

for their students. Outside of school, only 40 percent of children (ages 9 to 13) participate in organized sports or physical activity.¹³

Unhealthy Diets

The epidemic of childhood obesity is largely due to the prominence of unhealthy foods in the American diet. From sugary sodas to increased portion sizes, obesity's root may be found in the U.S. diet.

Ninety-three percent of U.S. adults believe that junk food plays a strong role in childhood obesity.¹⁴ In the past 25 years, milk imbibement by children has decreased by 39 percent and soda pop ingestion has increased by 137 percent.¹⁵ According to the American Academy of Pediatrics (AAP), nearly half the schools have contracts with soft drink firms and are given incentives plus a percentage of the drink sales.¹⁶ Schools often utilize the proceeds from vending machines to supplement budget gaps. Whereas the U.S. Department of Agriculture (USDA) regulates nutrition within cafeterias, vending machines are outside their jurisdiction.¹⁷ There have been recent moves to replace unhealthy foods with healthy foods within school vending machines.

According to the Bureau of Labor Statistics (BLS), increased time commuting from work, from school, and from activities have led to unhealthier diets. Busy parents depend on convenience foods, fast-food takeout, and home deliveries for meals, if family mealtime occurs at all.¹⁸

During their television time, children view about 40,000 commercials; 32 percent for candy, 31 percent for sugar-laden cereals, and 9 percent for fast food.¹⁹ The food industry spends about \$13 billion annually on television food promotions targeted to children.²⁰

Portion sizes have grown appreciably in recent years, primarily high-caloric foods. Most parents no longer discern appropriate

portions.²¹ "Although several factors contribute to weight gain, consistent eating in excess of daily energy requirements plays a primary etiological role across the lifespan."²² Americans need to be reeducated in the arena of nutrition.

High Fructose Corn Syrup

Most nutritionists consider high fructose corn syrup (HFCS) as one of the causes of the nation's obesity epidemic. The United States consumes more sweeteners made from corn than from sugarcane or beets, ingesting it in beverages, processed foods, and baked goods. The food industry has profited appreciably from this inexpensive sweetener. Much of the HFCS consumed is unbeknownst to Americans. For example, a low-fat, fruit-flavored yogurt can have 10 teaspoons of HFCS in a serving. In 2000, Americans ingested the equivalent of 31 teaspoons a day of added sugars. A 12-ounce can of soda pop has 13 teaspoons of sugar in the form of HFCS.²³ The amount of soda we consume with HFCS comprises about 40 percent of added caloric sweeteners.²⁴

The process of pulling sugar from cornstarch was perfected in the 1970s, when Japanese researchers developed a reliable way to turn cornstarch into syrup sweet enough to compete with liquid sugar. HFCS blends easily; extends shelf life; keeps breads brown and soft; and is about 20 percent less expensive than other sources of sugar.²⁵

The body processes the fructose in HFCS differently than cane or beet sugar, which changes the way metabolic-regulating hormones function. HFCS causes the body to want to eat more and to store more fat. Unlike other forms of carbohydrates made from glucose, fructose does not stimulate the pancreas to release insulin. The fructose is converted to fat in the form of triglycerides by the liver. The body also does not produce leptin (a hormone produced by the body's fat cells) or suppress the production of ghrelin (a

hormone that increases hunger and appetite). “Because fructose in isolation doesn’t activate the hormones that regulate body weight as do other types of carbohydrate composed of glucose, consuming a diet high in fructose could lead to taking in more calories and, over time, to weight gain.” (Peter Havel, UC Davis nutrition researcher)²⁶

Nevada

According to the *National Survey of Children’s Health*, Nevada is slightly below the national percentage in the “Overweight” and “At Risk for Overweight” indicators (see chart below). An individual is considered “Underweight” if she/he has a BMI below the 5th percentile, “Normal Weight” if she/he has a BMI between the 5th and 85th percentiles, “At Risk for Overweight” if she/he has a BMI between the 85th and 95th percentiles, and “Overweight” if she/he has a BMI at or above the 95th percentile. Nevada has about the same percentage of “Normal Weight” children as the national average, but nearly double the percentage of “Underweight” children. Nevada is a highly image-conscious state compared to say the midwest.

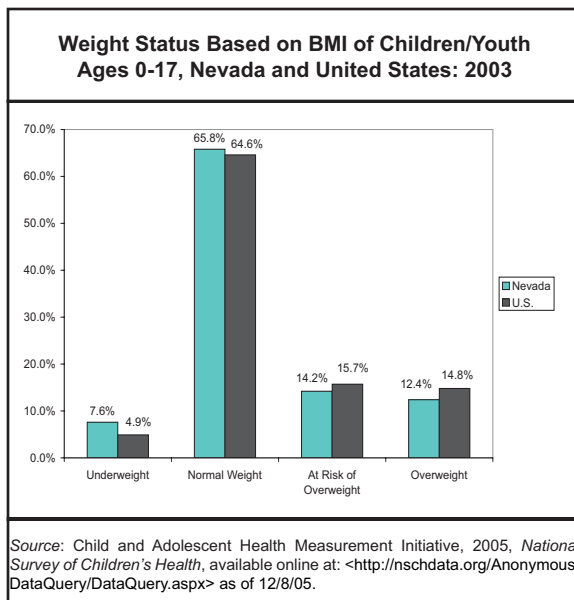
According to the *2003 Youth Risk Behavior Survey*, 30 percent of Nevada students described themselves as overweight, which is close to the national percentage (29.6%). In Nevada, more female students (35.5%) described themselves as overweight than male students (24.7%). The abundance of Nevada students having participated in insufficient physical activity was 29 percent. This percentage was higher among female (34.2%) than male students (24.1%). Forty-seven percent of Nevada students were trying to lose weight.

Intervention

Childhood obesity intervention received national attention when former U.S. President William Jefferson Clinton took up the cause. The AHA, Clinton Foundation, and Nickelodeon have forged an alliance, called Alliance for a Healthier Generation, to heighten awareness about the growing obesity health threat and to encourage children to develop healthy dietary and active habits. According to President Clinton, “We have got to change the way we prepare food, we have got to change the way we present it. We have got to change the way we educate our children, beginning in the first grade or kindergarten.” He weighed 210 pounds when he was in his early teens and survived heart bypass surgery in September 2004.²⁹

Early intervention for childhood obesity can begin in infancy. The initiation and duration of breast feeding can reduce the risk of later obesity. Only 64 percent of mothers breast feed, and only 17 percent are breast feeding until the child reaches six-months old, as recommended.³⁰

It is critical to instill healthy eating habits in children early, due to the limited potential for reversing eating habits related to obesity.³¹ Older children are greatly influenced by school activities. Education and intervention can include classroom instruction; school meal and vending machine improvement; and stressing physical activity.³²



Conclusion

The increase in childhood obesity cases can be mainly attributed to sedentary lifestyles and unhealthy diets. The array of sedentary pastimes has led to a severe lack of physical activity among children. The American diet has become a highly unhealthy one, both in what children choose to consume and in the way food is processed by the food industry. Intervention will require a nationwide effort to educate a nation that has become acclimated to quick and easy routines. Americans need to begin reading labels and petitioning the food industry toward healthier food-preparation methods. Physical activities should become more readily available to children at school and at home. Childhood obesity is now in the national spotlight and the cure to this epidemic may be on the horizon.

References

1. Goldsmith, Connie, September-October 2005, "Supersized Kids: The Epidemic of Obesity in Children and Teens," *Access*, Vol. 19 Issue 8, pp. 20-25.
2. American Obesity Association, 2002, "Childhood Obesity," available online at: <<http://www.obesity.org/subs/childhood/prevalence.shtml>> (accessed 11/15/2005).
3. Hoffman, Ronald L., "Epidemic of Child Obesity," available online at: <<http://www.drhoffman.com/page.cfm/195>> (accessed 11/15/2005).
4. Bray, George A., August 2004, "The Epidemic of Obesity and Changes in Food Intake: the Fluoride Hypothesis," *Physiology and Behavior*, Vol. 82, Issue 1, pp. 115-121.
5. Goldsmith, Connie, September-October 2005, "Supersized Kids: The Epidemic of Obesity in Children and Teens," *Access*, Vol. 19 Issue 8, pp. 20-25.
6. Torgan, Carol, June 2002, "Childhood Obesity on the Rise," National Institutes of Health, available online at: <<http://www.nih.gov/news/WorndonHealth/jun2002/childhoodobesity.htm>> (accessed 11/18/2005).
7. Goldsmith, Connie, September-October 2005, "Supersized Kids: The Epidemic of Obesity in Children and Teens," *Access*, Vol. 19 Issue 8, pp. 20-25.
8. Krisberg, Kim, September 2005, "Schools Taking Center Stage in Battle against Childhood Obesity," *Nation's Health*, Vol. 35, Issue 7, pp. 21-23.
9. Hood, Ernie, August 2005, "Sharing Solutions for Childhood Obesity," *Environmental Health Perspectives*, Vol. 113, No. 8, pp. A520-A522.
10. Ebenkamp, Becky, September 2005, "What's the Fatter with Kids Today?" *Brandweek*, Vol 46. Issue 34.
11. Hoffman, Ronald L., "Epidemic of Child Obesity," available online at: <<http://www.drhoffman.com/page.cfm/195>> (accessed 11/15/2005).
12. Goldsmith, Connie, September-October 2005, "Supersized Kids: The Epidemic of Obesity in Children and Teens," *Access*, Vol. 19 Issue 8, pp. 20-25.
13. Ibid.
14. Ebenkamp, Becky, September 2005, "What's the Fatter with Kids Today?" *Brandweek*, Vol 46. Issue 34.
15. Goldsmith, Connie, September-October 2005, "Supersized Kids: The Epidemic of Obesity in Children and Teens," *Access*, Vol. 19 Issue 8, pp. 20-25.
16. Ibid.
17. Krisberg, Kim, September 2005, "Schools Taking Center Stage in Battle against Childhood Obesity," *Nation's Health*, Vol. 35, Issue 7, pp. 21-23.
18. Goldsmith, Connie, September-October 2005, "Supersized Kids: The Epidemic of Obesity in Children and Teens," *Access*, Vol. 19 Issue 8, pp. 20-25.
19. Ebenkamp, Becky, September 2005, "What's the Fatter with Kids Today?" *Brandweek*, Vol 46. Issue 34.
20. Goldsmith, Connie, September-October 2005, "Supersized Kids: The Epidemic of Obesity in Children and Teens," *Access*, Vol. 19 Issue 8, pp. 20-25.
21. Ibid.
22. Holsen, Laura M., Jennifer R. Zarcone, Travis I. Thompson, William M. Brooks, Mary F. Anderson, Jasjit S. Ahluwalia, Nicole L. Nollen, and Cary R. Savage, September 2005, "Neural Mechanisms Underlying Food Motivation in Children and Adolescents," *NeuroImage*, Vol. 27, Issue 3, pp. 669-676.
23. Severson, Kim, February 2004, "Sugar Coated We're Drowning in High Fructose Corn Syrup. Do the Risks Go Beyond Our Waistline?" *San Francisco Chronicle*, available online at: <<http://www.sfgate.com/cgi-bin/article.cgi?f=/chronicle/archive/2004/02/18/FDGS24VKMH1.DTL>> (accessed 11/17/2005).
24. *Pediatric Alert*, August 2004, "Role of High Fructose Corn Syrup in the Obesity Epidemic," Vol. 29 Issue 15, p88-89.

25. Severson, Kim, February 2004, "Sugar Coated We're Drowning in High Fructose Corn Syrup. Do the Risks Go Beyond Our Waistline?" *San Francisco Chronicle*, available online at: <<http://www.sfgate.com/cgi-bin/article.cgi?f=/chronicle/archive/2004/02/18/FDGS24VKMH1.DTL>> (accessed 11/17/2005).
26. Ibid.
27. Child and Adolescent Health Measurement Initiative, 2005, *National Survey of Children's Health*, "Child Health Measures, Physical and Dental Health, Indicator 1.4," available online at: <<http://nschdata.org/Anonymous/DataQuery/DataQuery.aspx>> (accessed 12/8/05)
28. Centers for Disease Control and Prevention, 2003, "Youth Risk Behavior Surveillance-United States," available online at: <<http://www.cdc.gov/mmwr/PDF/SS/SS5302.pdf>> (accessed 11/18/2005).
29. CBS News, November 2005, "Clinton's Crusade on Child Obesity," available online at: <<http://www.cbsnews.com/stories/2005/11/18/eveningnews/main1059950.shtml>> (accessed 11/21/2005).
30. Goldsmith, Connie, September-October 2005, "Supersized Kids: The Epidemic of Obesity in Children and Teens," *Access*, Vol. 19 Issue 8, pp. 20-25.
31. Ibid.
32. Ibid.
33. Hedley, Allison A., Cynthia L. Ogden, Clifford L. Johnson, Margaret D. Carroll, Lester R. Curtin, and Katherine M. Flegal, June 2004, "Prevalence of Overweight and Obesity Among US Children, Adolescents, and Adults, 1999-2002," *Journal of the American Medical Association*, Vol. 291, No. 23, pp. 2847-2850, available online at: <<http://jama.ama-assn.org/cgi/reprint/291/23/2847.pdf>> (accessed 11/18/2005).
34. Mayo Foundation for Medical Education and Research, April 2005, "Childhood Obesity: What Parents Can Do," available online at: <<http://www.mayoclinic.com/health/childhood-obesity/FL00058/si=2765>> (accessed 11/18/2005).
35. Cottrell Lesley C., Emily Spangler-Murphy, Valerie Minor, Amia Downes, Paula Nicholson, and William A. Neal, 2005, "A Kindergarten Cardiovascular Risk Surveillance Study: CARDIAC-Kinder," *American Journal of Health Behavior*, Vol. 29, No. 6, pp. 595-606.
36. Bruss, Mozhdeh, Joseph R. Morris, Linda L. Dannison, Mark P. Orbe, Jackie A. Quitugua, and Rosa T. Palacios, 2005, "Food, Culture, and Family: Exploring the Coordinated Management of Meaning Regarding Childhood Obesity," *Health Communication*, Vol. 18, No. 2, pp. 155-175, available online at: <http://www.leaonline.com/doi/pdf/10.1207/s15327027hc1802_4?cookieSet=1> (accessed 11/18/2005).
37. Ruskin, Gary and Juliet Schor, August 2005, "Junk Food Nation," *Nation*, Vol. 281, Issue 6, pp. 15-17.
38. *Environmental Nutrition*, July 2004, "Pervasive High-Fructose Corn Syrup Linked to Weight Gain and Type 2 Diabetes," Vol. 27 Issue 7, p. 3.
39. Clinton Foundation, May 2005, "Creating a Healthier Generation," available online at: <<http://www.clintonfoundation.org/050305-feature-wjc-aha-healthier-generation-initiative.htm>> (accessed 11/21/2005).
40. *ConsumerReports.org*, March 2003, "The Stealth Fat," available online at: <<http://www.consumerreports.org/cro/food/trans-fat-303/overview.htm>> (accessed 11/21/2005).
41. Centers for Disease Control and Prevention, September 2005, "Overweight and Obesity: Defining Overweight and Obesity," available online at: <<http://www.cdc.gov/nccdphp/dnpa/obesity/defining.htm>> (accessed 11/15/2005).
42. University of Nevada Southern Area Cooperative Extension, August 2004, "Nurturing Partners," available online at: <<http://www.unce.unr.edu/Southern/health/nurturing.html>> (accessed 11/16/2005).
43. Cooperative State Research, Education, and Extension Service, United States Department of Agriculture, April 2002, "Slimmer Kids," available online at: <http://www.csrees.usda.gov/newsroom/impacts/02index/slimmer.htm> (accessed 11/16/2005).
44. *Child Health Alert*, September 2004, "Is High Fructose Corn Syrup the Cause of Obesity," Vol. 22, p. 3.
45. *Better Nutrition*, August 2004, "Insidious Ingredient," available online at: http://www.gobelle.com/p/articles/mi_m0FKA/is_8_66/ai_n6108486 (accessed 11/18/2005).

By
 William Cope, MS, MBA
 Faculty Consultant
 Center for Business and Economic Research
 University of Nevada Las Vegas

If you need more specific information about the children and youth in your local area, contact Nevada KIDS COUNT, Keith Schwer, PhD, Director CBER or Rennae Daneshvary, PhD, Interim Nevada KIDS COUNT Coordinator, Assistant Director CBER

Phone: (702) 895-3191

Fax: (702) 895-3606

E-mail: kids@unlv.nevada.edu



**The Center for Business and
Economic Research
4505 Maryland Parkway, Box 456002**