

Overweight and Obesity among Children by California Cities - 2010

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Data from the 2010 California Physical Fitness Test (PFT) was vital in the development of this report. The Fitnessgram data, mandated by the State, provides a snapshot of the physical fitness of students and provides the Body Mass Index (BMI) information used to compute obesity and overweight figures in this study.

Background

During the last three decades, the prevalence of overweight and obesity in the United States has increased dramatically in both adults and children.¹ In the 1970s, about 15 percent of adults were obese; by 2004, the rate had climbed to 32 percent.¹ Although the prevalence of obesity among children is lower than among adults, the rates among children and adolescents have increased considerably more. Between the early 1970s and 2003-2004, the prevalence of obesity nearly tripled among youth ages 12 to 19, from 6 percent to 17 percent, and more than quadrupled among children ages 6 to 11, rising from 4 percent to 19 percent.¹⁻⁴

More positively, recent data from the National Health and Nutrition Examination Survey indicated that, between 2003-2004 and 2007-2008, there has been no significant change in the prevalence of obesity among children, suggesting that the prevalence of childhood obesity could be leveling off nationally. Nevertheless, rates remain high, with approximately 36 percent of 6- to 11-year-olds and 34 percent of 12- to 19-year-olds considered to be overweight or obese. Among these youth, 20

percent of 6- to 11-year-olds and 18 percent of 12- to 19-year-olds are considered to be obese.⁵

Overweight and obesity are associated with serious health risks in children and adolescents, including an increased risk for high cholesterol and high blood pressure (indicators of cardiovascular disease), high fasting insulin (an early indicator of diabetes risk), and a variety of musculoskeletal disorders.⁶⁻¹⁰

Children who are overweight or obese often grow up to be obese as adults.^{11,12} Among adults, overweight and obesity are associated with increased risk for diabetes, cardiovascular disease, hypertension, hypercholesterolemia, stroke, some types of cancer, musculoskeletal conditions, and premature death.^{1,2,13} Obesity has become second only to tobacco use as the leading preventable cause of disease and death in the United States.¹⁴ The rise in obesity and related diseases has led experts to predict a decrease in life expectancy and productivity for today's youth as well as increased individual and societal costs.¹⁵⁻¹⁷

Although the prevalence of obesity is high among all children regardless of race/ethnicity,

children of color are disproportionately affected. Hispanic, African American, and American Indian girls and boys have higher rates of obesity than white children.^{1,18} Asian children tend to have the lowest rates of obesity, but they have also experienced considerable increases in recent decades.¹⁹ Currently, African American girls and Mexican American boys in the United States have the highest rates of childhood obesity.²⁰ Recent research suggests that these disparities are mirrored in California, with higher rates of obesity and overweight among Latinos, African Americans, and American Indians than among whites and Asians.²¹ Overweight and obesity and their associated health problems have a significant economic impact—in both direct and indirect costs. Direct medical costs may include preventive, diagnostic, and treatment services related to obesity. Indirect costs can include decreased productivity, restricted activity, absenteeism, and future value lost by premature death. Nationally, medical costs alone for obesity reach \$147 billion each year.²² California spends more public and private money on the health consequences of obesity than any other state.²³ Including lost productivity, overweight and obesity in California cost families, employers, the healthcare industry, and the government more than \$21 billion each year.²⁴

Study Methods

The California Center for Public Health Advocacy and the UCLA Center for Health Policy Research examined geographical variation by city in rates of overweight and obesity among fifth-, seventh-, and ninth-grade schoolchildren in California. Data were from the 2010 California Physical Fitness Test (PFT). State law mandates that public schools administer the PFT annually to all California

students in grades five, seven, and nine. The test used in California schools is the Fitnessgram. Body composition, which includes measured height and weight, skinfold measurements, or bioelectric impedance analysis, is one of six fitness areas tested. We obtained de-identified, student-level data for the body composition component of the PFT from the California Department of Education (CDE). This study utilized measured height and weight to calculate Body Mass Index (BMI). Biologically implausible values were excluded. BMI was used to classify students as overweight or obese. Among children, overweight is defined as having a BMI between the 85th and 95th percentile on the 2000 Centers for Disease Control and Prevention sex-specific BMI-for-age growth charts, while obesity is defined as having a BMI above the 95th percentile.^{25,26} This study utilized data from 1,214,061 students in 2010 with measured height and weight data.

City overweight rates were determined based on school locations. Schools were assigned to cities by mapping the school locations using latitude and longitude coordinates that are part of the CDE public school data file. GIS techniques were used to map the school locations and assign schools to cities based on census maps delineating incorporated cities and census designated places. Overweight rates in a city represent the average overweight rate for fifth, seventh and ninth grade public school students who attend schools physically located within the boundaries of that city. Data are shown for incorporated cities that have a population of 20,000. Results for cities with a sample size from the PFT of less than 100 are not presented. In addition, results for cities with PFT data reported for less than 70% of enrolled 5th, 7th, and 9th grade students are not presented.

City	County	2010 Overweight + Obese %
Adelanto	San Bernardino	40.4%
Agoura Hills	Los Angeles	15.6%
Alameda	Alameda	28.7%
Alhambra	Los Angeles	35.5%
Aliso Viejo	Orange	20.8%
Anaheim	Orange	43.5%
Antioch	Contra Costa	42.3%
Apple Valley	San Bernardino	35.1%
Arcadia	Los Angeles	25.1%
Atascadero	San Luis Obispo	29.9%
Atwater	Merced	45.1%
Azusa	Los Angeles	45.6%
Bakersfield	Kern	42.7%
Baldwin Park	Los Angeles	46.7%
Banning	Riverside	45.9%
Barstow	San Bernardino	42.3%
Beaumont	Riverside	38.1%
Bell	Los Angeles	47.1%
Bellflower	Los Angeles	42.7%
Benicia	Solano	29.9%
Beverly Hills	Los Angeles	21.5%
Blythe	Riverside	40.3%
Brawley	Imperial	50.0%
Brea	Orange	28.0%
Brentwood	Contra Costa	32.5%
Buena Park	Orange	41.8%
Burlingame	San Mateo	24.4%
Calabasas	Los Angeles	20.0%
Calexico	Imperial	47.6%
Camarillo	Ventura	30.2%
Campbell	Santa Clara	30.1%
Carlsbad	San Diego	16.8%
Carson	Los Angeles	45.0%
Cathedral City	Riverside	42.1%

City	County	2010 Overweight + Obese %
Ceres	Stanislaus	44.2%
Cerritos	Los Angeles	31.1%
Chico	Butte	30.8%
Chino	San Bernardino	41.8%
Chino Hills	San Bernardino	27.0%
Chula Vista	San Diego	37.9%
Citrus Heights	Sacramento	34.7%
Claremont	Los Angeles	29.8%
Coachella	Riverside	48.7%
Colton	San Bernardino	46.1%
Compton	Los Angeles	50.8%
Concord	Contra Costa	41.5%
Corona	Riverside	35.0%
Covina	Los Angeles	40.6%
Cudahy	Los Angeles	49.5%
Culver City	Los Angeles	32.6%
Cupertino	Santa Clara	18.4%
Cypress	Orange	27.6%
Daly City	San Mateo	39.2%
Dana Point	Orange	20.8%
Danville	Contra Costa	16.5%
Davis	Yolo	24.1%
Delano	Kern	48.0%
Desert Hot Springs	Riverside	40.0%
Diamond Bar	Los Angeles	29.4%
Dinuba	Tulare	44.9%
Downey	Los Angeles	40.1%
Duarte	Los Angeles	41.9%
Dublin	Alameda	26.1%
El Cajon	San Diego	38.1%
El Centro	Imperial	45.8%
El Cerrito	Contra Costa	36.3%
El Monte	Los Angeles	50.2%

City	County	2010 Overweight + Obese %
Elk Grove	Sacramento	33.8%
Encinitas	San Diego	18.5%
Escondido	San Diego	38.9%
Eureka	Humboldt	41.0%
Fairfield	Solano	39.3%
Folsom	Sacramento	22.2%
Fontana	San Bernardino	44.9%
Foster City	San Mateo	29.9%
Fountain Valley	Orange	31.4%
Fremont	Alameda	27.9%
Fresno	Fresno	42.5%
Fullerton	Orange	30.9%
Galt	Sacramento	39.9%
Garden Grove	Orange	38.0%
Gardena	Los Angeles	49.9%
Gilroy	Santa Clara	43.6%
Glendale	Los Angeles	37.7%
Glendora	Los Angeles	26.9%
Goleta	Santa Barbara	35.2%
Hanford	Kings	40.5%
Hawthorne	Los Angeles	45.5%
Hayward	Alameda	42.7%
Hemet	Riverside	38.1%
Hercules	Contra Costa	37.0%
Hesperia	San Bernardino	41.0%
Highland	San Bernardino	32.8%
Hollister	San Benito	43.2%
Huntington Beach	Orange	26.4%
Huntington Park	Los Angeles	53.0%
Imperial Beach	San Diego	39.8%
Indio	Riverside	44.4%
Inglewood	Los Angeles	47.8%
Irvine	Orange	21.7%

City	County	2010 Overweight + Obese %
La Cañada Flintridge	Los Angeles	22.3%
La Habra	Orange	36.9%
La Mesa	San Diego	36.9%
La Puente	Los Angeles	42.4%
La Quinta	Riverside	39.2%
La Verne	Los Angeles	30.8%
Lafayette	Contra Costa	17.8%
Laguna Beach	Orange	14.3%
Laguna Hills	Orange	27.2%
Laguna Niguel	Orange	19.4%
Lake Elsinore	Riverside	38.2%
Lake Forest	Orange	26.9%
Lakewood	Los Angeles	39.5%
Lancaster	Los Angeles	38.2%
Lemon Grove	San Diego	46.3%
Lemoore	Kings	42.4%
Livermore	Alameda	32.1%
Lodi	San Joaquin	39.2%
Loma Linda	San Bernardino	41.4%
Lomita	Los Angeles	44.0%
Lompoc	Santa Barbara	48.6%
Long Beach	Los Angeles	40.7%
Los Angeles	Los Angeles	45.2%
Los Banos	Merced	44.5%
Los Gatos	Santa Clara	15.4%
Madera	Madera	45.1%
Manhattan Beach	Los Angeles	11.3%
Manteca	San Joaquin	38.0%
Martinez	Contra Costa	33.0%
Maywood	Los Angeles	50.4%
Menifee	Riverside	36.1%
Menlo Park	San Mateo	26.1%
Merced	Merced	40.9%

City	County	2010 Overweight + Obese %
Millbrae	San Mateo	24.8%
Milpitas	Santa Clara	33.3%
Mission Viejo	Orange	25.1%
Modesto	Stanislaus	39.6%
Monrovia	Los Angeles	39.8%
Montclair	San Bernardino	43.9%
Monterey	Monterey	41.2%
Moorpark	Ventura	29.2%
Moreno Valley	Riverside	42.3%
Morgan Hill	Santa Clara	30.3%
Murrieta	Riverside	29.2%
Napa	Napa	38.5%
National City	San Diego	50.0%
Newark	Alameda	39.2%
Newport Beach	Orange	18.3%
Norco	Riverside	33.7%
Norwalk	Los Angeles	46.5%
Novato	Marin	31.7%
Oakdale	Stanislaus	34.6%
Oakland	Alameda	42.3%
Oakley	Contra Costa	36.7%
Ontario	San Bernardino	43.3%
Orange	Orange	43.2%
Oxnard	Ventura	47.9%
Pacifica	San Mateo	33.1%
Palm Desert	Riverside	31.6%
Palm Springs	Riverside	38.8%
Palmdale	Los Angeles	39.7%
Palo Alto	Santa Clara	18.4%
Paradise	Butte	27.7%
Paramount	Los Angeles	46.4%
Paso Robles	San Luis Obispo	32.7%
Patterson	Stanislaus	45.6%
Perris	Riverside	44.2%

City	County	2010 Overweight + Obese %
Pico Rivera	Los Angeles	43.7%
Pittsburg	Contra Costa	45.6%
Pleasant Hill	Contra Costa	32.1%
Pleasanton	Alameda	22.8%
Pomona	Los Angeles	48.1%
Port Hueneme	Ventura	52.6%
Porterville	Tulare	44.0%
Poway	San Diego	26.1%
Rancho Cordova	Sacramento	39.1%
Rancho Cucamonga	San Bernardino	30.0%
Rancho Palos Verdes	Los Angeles	29.1%
Rancho Santa Margarita	Orange	22.9%
Redding	Shasta	30.5%
Redlands	San Bernardino	30.8%
Redwood City	San Mateo	37.4%
Rialto	San Bernardino	45.0%
Richmond	Contra Costa	51.0%
Ridgecrest	Kern	27.2%
Riverbank	Stanislaus	43.7%
Riverside	Riverside	39.2%
Rocklin	Placer	24.0%
Rohnert Park	Sonoma	32.4%
Rosemead	Los Angeles	34.3%
Roseville	Placer	26.4%
Sacramento	Sacramento	39.9%
Salinas	Monterey	46.7%
San Bernardino	San Bernardino	43.9%
San Bruno	San Mateo	43.4%
San Carlos	San Mateo	29.2%
San Clemente	Orange	21.1%
San Diego	San Diego	33.5%
San Dimas	Los Angeles	31.6%

City	County	2010 Overweight + Obese %
San Fernando	Los Angeles	48.0%
San Francisco	San Francisco	31.7%
San Jacinto	Riverside	39.5%
San Jose	Santa Clara	36.0%
San Juan Capistrano	Orange	33.7%
San Leandro	Alameda	42.7%
San Luis Obispo	San Luis Obispo	23.6%
San Marcos	San Diego	31.9%
San Mateo	San Mateo	33.2%
San Pablo	Contra Costa	52.4%
San Rafael	Marin	32.4%
San Ramon	Contra Costa	22.6%
Sanger	Fresno	47.5%
Santa Ana	Orange	46.5%
Santa Barbara	Santa Barbara	28.2%
Santa Clara	Santa Clara	37.5%
Santa Clarita	Los Angeles	29.6%
Santa Cruz	Santa Cruz	31.0%
Santa Monica	Los Angeles	23.0%
Santa Paula	Ventura	47.9%
Santa Rosa	Sonoma	36.3%
Saratoga	Santa Clara	18.2%
Seal Beach	Orange	28.8%
Seaside	Monterey	45.6%
Selma	Fresno	47.0%
Simi Valley	Ventura	30.7%
Soledad	Monterey	48.5%
South Gate	Los Angeles	51.3%
South Lake Tahoe	El Dorado	34.6%
South Pasadena	Los Angeles	21.8%
South San Francisco	San Mateo	47.0%
Stanton	Orange	51.8%

City	County	2010 Overweight + Obese %
Stockton	San Joaquin	42.4%
Suisun City	Solano	46.3%
Sunnyvale	Santa Clara	31.0%
Temecula	Riverside	27.6%
Temple City	Los Angeles	28.2%
Thousand Oaks	Ventura	25.7%
Torrance	Los Angeles	26.9%
Tracy	San Joaquin	37.6%
Tulare	Tulare	43.6%
Turlock	Stanislaus	39.7%
Tustin	Orange	35.9%
Twentynine Palms	San Bernardino	32.1%
Union City	Alameda	38.4%
Upland	San Bernardino	42.4%
Vacaville	Solano	36.3%
Vallejo	Solano	43.7%
Ventura	Ventura	33.1%
Victorville	San Bernardino	40.1%
Visalia	Tulare	40.8%
Vista	San Diego	38.7%
Walnut	Los Angeles	27.3%
Walnut Creek	Contra Costa	21.0%
Wasco	Kern	46.8%
Watsonville	Santa Cruz	49.3%
West Covina	Los Angeles	41.0%
West Hollywood	Los Angeles	43.8%
West Sacramento	Yolo	43.6%
Westminster	Orange	33.0%
Wildomar	Riverside	36.7%
Windsor	Sonoma	32.4%
Woodland	Yolo	42.6%
Yuba City	Sutter	35.2%
Yucaipa	San Bernardino	27.4%
Yucca Valley	San Bernardino	37.1%

1. Officially known as 'San Buenaventura (Ventura)'
 2. Officially known as 'El Paso de Robles (Paso Robles)'

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References

- Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999-2004. *JAMA*. 2006;295:1549-1555.
- Ogden CL, Yanovski SZ, Carroll MD, Flegal KM. The epidemiology of obesity. *Gastroenterology*. 2007;132:2087-2102.
- Troiano RP, Flegal KM. Overweight children and adolescents: description, epidemiology, and demographics. *Pediatrics*. 1998;101:497-504.
- Ritchie LD, Ivey SL, Woodward-Lopez G, Crawford PB. Alarming trends in pediatric overweight in the United States. *Soz Praventivmed*. 2003;48(3):168-177.
- Ogden CL, Carroll MD, Flegal KM. High body mass index for age among US children and adolescents, 2003-2006. *JAMA*. 2008;299:2401-2405.
- Preventing childhood obesity: Health in the balance*. Washington, DC: Institute of Medicine;2004.
- Dietz WH. Health consequences of obesity in youth: childhood predictors of adult disease. *Pediatrics*. Mar 1998;101(3 Pt 2):518-525.
- Must A, Anderson SE. Effects of obesity on morbidity in children and adolescents. *Nutr Clin Care*. Jan-Apr 2003;6(1):4-12.
- Freedman DS, Khan LK, Dietz WH, Srinivasan SR, Berenson GS. Relationship of Childhood Obesity to Coronary Heart Disease Risk Factors in Adulthood: The Bogalusa Heart Study. *Pediatrics*. September 1, 2001 2001;108(3):712-718.
- Freedman DS, Mei Z, Srinivasan SR, Berenson GS, Dietz WH. Cardiovascular risk factors and excess adiposity among overweight children and adolescents: the Bogalusa Heart Study. *J Pediatr*. Jan 2007;150(1):12-17 e12.
- Serdula MK, Ivery D, Coates RJ, Freedman DS, Williamson DF, Byers T. Do obese children become obese adults? A review of the literature. *Prev Med*. 1993;22:167-177.
- Guo SS, Wu W, Chumlea WC, Roche AF. Predicting overweight and obesity in adulthood from body mass index values in childhood and adolescence. *Am J Clin Nutr*. Sep 2002;76(3):653-658.
- Must A, Spadano J, Coakley EH, Field AE, Colditz G, Dietz WH. The disease burden associated with overweight and obesity. *JAMA*. Oct 27 1999;282(16):1523-1529.
- The Surgeon General's Call To Action To Prevent and Decrease Overweight and Obesity*. Rockville (MD)2001.
- Olshansky SJ, Passaro DJ, Hershow RC, et al. A potential decline in life expectancy in the United States in the 21st century. *N Engl J Med*. Mar 17 2005;352(11):1138-1145.
- van Dam RM, Willett WC, Manson JE, Hu FB. The relationship between overweight in adolescence and premature death in women. *Ann Intern Med*. Jul 18 2006;145(2):91-97.
- Finkelstein EA, Brown DS, Wraage LA, Allaire BT, Hoerger TJ. Individual and Aggregate Years-of-life-lost Associated With Overweight and Obesity. *Obesity* (Silver Spring). Aug 13 2009.
- Crawford PB, Story Mary, Wang MC, Ritchie LD, Sabry ZI. Ethnic issues in the epidemiology of childhood obesity. *Pediatric Clinics of North America*. 2001;48(4):855-878.
- Gordon-Larsen P, Adair LS, Popkin BM. The relationship of ethnicity, socioeconomic factors, and overweight in US adolescents. *Obes Res*. Jan 2003;11(1):121-129.
- Ogden CL, Carroll MD, Curtin LR, Lamb MM, Flegal KM. Prevalence of High Body Mass Index in US Children and Adolescents, 2007-2008. *JAMA: The Journal of the American Medical Association*. January 20, 2010 2010;303(3):242-249.
- Madsen KA, Weedn AE, Crawford PB. Disparities in Peaks, Plateaus, and Declines in Prevalence of High BMI Among Adolescents. *Pediatrics*. September 1, 2010 2010;126(3):434-442.
- Finkelstein EA, Trogdon JG, Cohen JW, Dietz W. Annual medical spending attributable to obesity: payer- and service-specific estimates. *Health Aff* (Millwood). 2009;28(5):w822-831.
- Finkelstein EA, Fiebelkorn IC, Wang G. State-level estimates of annual medical expenditures attributable to obesity. *Obes Res*. Jan 2004;12(1):18-24.
- The economic costs of overweight, obesity, and physical inactivity among California adults - 2006*: California Center for Public Health Advocacy; July 2009.
- Centers for Disease Control and Prevention. Defining overweight and obesity. <http://www.cdc.gov/nccdphp/dnpa/obesity/defining.htm>. Accessed November 14, 2008.
- Kuczmarski RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. *Advance data*. Jun 8 2000(314):1-27.