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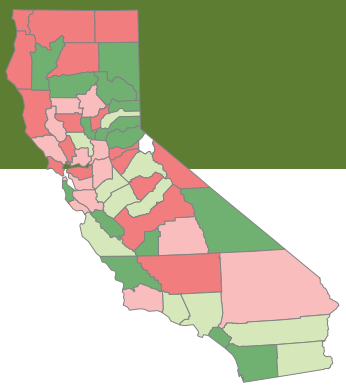
A Patchwork of Progress

Changes in Overweight and Obesity Among California 5th, 7th, and 9th Graders, 2005-2010



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Summary

In California, more than one-third (38%) of fifth-, seventh-, and ninth-grade public school students were overweight or obese in 2010. This number represents a 1.1 percent decrease in the statewide prevalence of overweight and obesity from 2005, suggesting that the 30-year trend of increasing childhood obesity rates may be leveling off. However, overweight and obesity continue to be of major concern in the state, with more than half of California counties experiencing increases in rates of overweight and obesity among youth between 2005 and 2010. Public policy options that promote healthy eating and physical activity will continue to be critical to reducing overweight and obesity among California's youth.

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- to19-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,

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Living in an unhealthy food environment has been linked to unhealthy eating behaviors.

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 Overview

The California Center for Public Health Advocacy and the UCLA Center for Health Policy Research examined rates of overweight and obesity among children and adolescents in California, both statewide and by county, including changes in overweight and obesity rates over five years, 2005 to 2010. Data are from the California Physical Fitness Test (PFT), which is administered annually to all California public school students in grades five, seven, and nine. Measured height and weight data from the body composition component of the PFT were used to calculate body mass index (BMI), and BMI was used to determine rates of overweight and obesity. For more information about study methodology, see Data Source and Methods.

Findings

More Than One-Third of Children in California Are Overweight or Obese

In California, more than one-third (38%) of fifth-, seventh-, and ninth-graders were overweight or obese in 2010. The prevalence of overweight and obesity among school-age children decreased slightly (1.1%) between 2005 and 2010, suggesting that California may be experiencing a leveling off in childhood obesity rates similar to that seen nationally. Nonetheless, rates remain high.

Overweight and Obesity Vary from Place to Place in California

The prevalence of overweight and obesity among fifth, seventh-, and ninth-grade children in 2010 varied widely from county to county (Exhibit 1). Of the 58 counties in California, the prevalence of overweight and obesity was greater than 43 percent in ten counties. Among those, the highest rates were in Del Norte (45%), Colusa (46%), and Imperial (47%) counties. Only nine counties in California had rates of overweight and obesity below 30 percent. The

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Increased access to parks and recreational resources can help protect against obesity in children.

lowest rates among children in grades five, seven, and nine were in Placer (26%), El Dorado (26%), and Marin (25%) counties.

Changes in the rates of overweight and obesity between 2005 and 2010 also varied considerably from county to county (Exhibits 1 and 2). Thirty-one of California's 58 counties experienced an increase in the rates of overweight and obesity between 2005 and 2010. Among these counties, five had rates at least 10 percent higher in 2010 than in 2005: Yuba, Mariposa, Amador, Colusa, and Del Norte counties. Twenty-six counties experienced a decrease in the prevalence of overweight and obesity among children in grades five, seven, and nine. Among these counties, seven had rates at least 5 percent lower in 2010 than in 2005: Placer, San Benito, San Mateo, Sutter, Plumas, Sierra, and Trinity counties.

This regional variation is likely due to a number of factors, including differences in demographic, social, economic, and environmental characteristics as well as differences in local policies and programs. For example, the food environment in California varies greatly from place to place—with some counties having limited availability of stores offering fresh fruits and vegetables compared to the availability of fast foods and convenience stores.[25] Living in an unhealthy food environment has been linked to unhealthy eating behaviors, such as greater consumption of fast food and soda, and to a higher prevalence of obesity and diabetes.[26-29] Similarly, resources and opportunities that encourage physical activity, such as parks and physical education programs, also vary by location. A recent study found substantial geographic differences in participation in physical education and the amount of physical activity among California adolescents.[30] Increased access to parks and recreational resources can help protect against obesity in children.[31]

Changes in the rates of overweight and obesity between 2005 and 2010 also varied considerably from county to county.

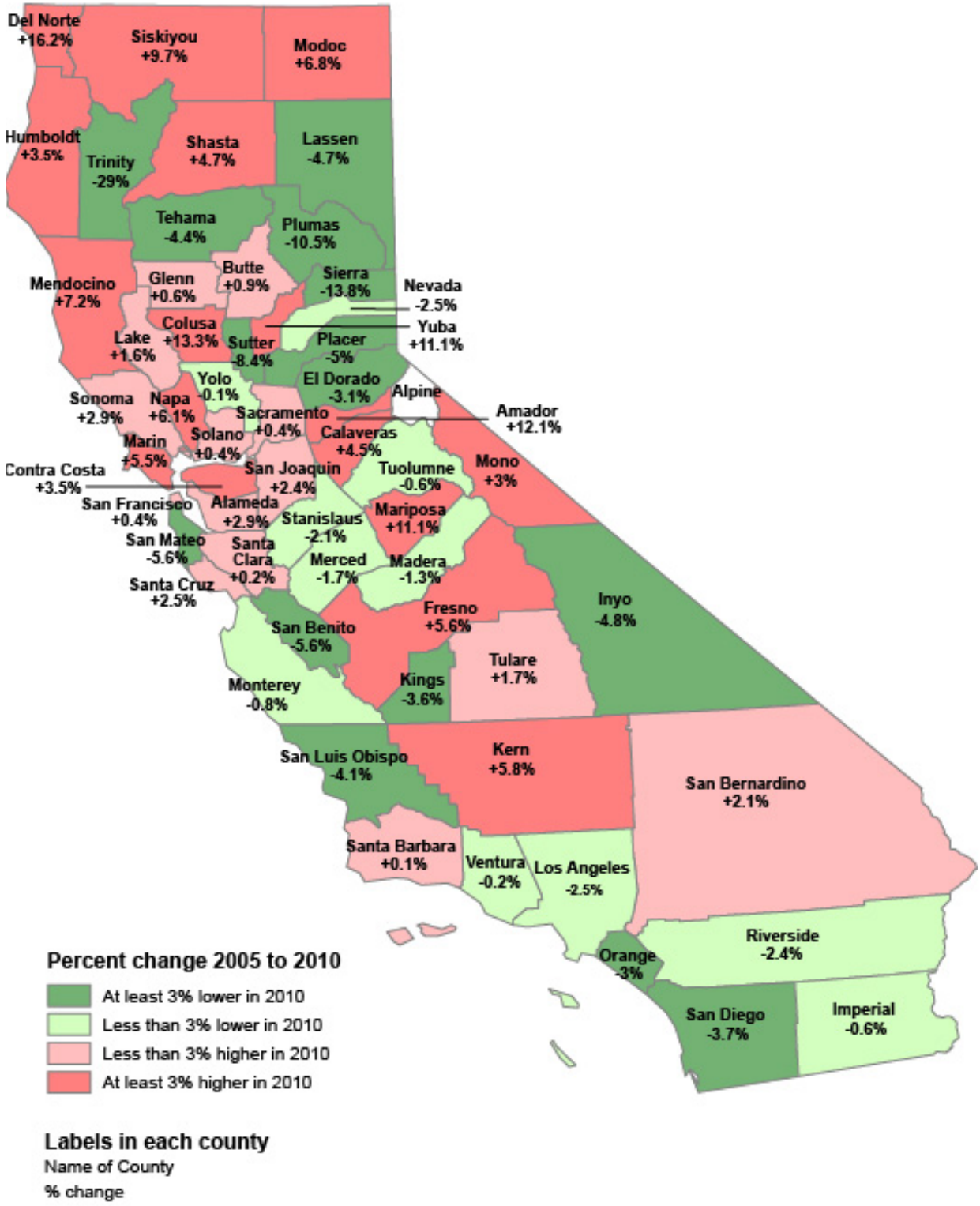
Exhibit 1
Prevalence and Changes in Overweight and Obesity Among Fifth-, Seventh-, and Ninth-Graders, by California County, 2005 to 2010

County	Percent Overweight or Obese 2005	Percent Overweight or Obese 2010	Percentage Point Difference 2005 to 2010	Percent Change 2005 to 2010
Alameda	33.51	34.48	0.97	2.9%
Alpine	*	*		
Amador	32.97	36.95	3.98	12.1%
Butte	34.41	34.71	0.30	0.9%
Calaveras	31.28	32.70	1.42	4.5%
Colusa	40.37	45.74	5.37	13.3%
Contra Costa	32.69	33.85	1.16	3.5%
Del Norte	38.84	45.15	6.31	16.2%
El Dorado	26.49	25.67	-0.82	-3.1%
Fresno	40.41	42.68	2.27	5.6%
Glenn	40.50	40.74	0.24	0.6%
Humboldt	38.80	40.16	1.36	3.5%
Imperial	47.18	46.91	-0.27	-0.6%
Inyo	36.58	34.82	-1.76	-4.8%
Kern	41.43	43.83	2.40	5.8%
Kings	45.11	43.50	-1.61	-3.6%
Lake	40.16	40.79	0.63	1.6%
Lassen	29.78	28.37	-1.41	-4.7%
Los Angeles	42.62	41.56	-1.06	-2.5%
Madera	44.71	44.13	-0.58	-1.3%
Marin	23.61	24.90	1.29	5.5%
Mariposa	26.16	29.07	2.91	11.1%
Mendocino	39.77	42.65	2.88	7.2%
Merced	44.50	43.75	-0.75	-1.7%
Modoc	36.12	38.58	2.46	6.8%
Mono	31.48	32.43	0.95	3.0%
Monterey	44.94	44.59	-0.35	-0.8%
Napa	36.85	39.10	2.25	6.1%
Nevada	27.90	27.20	-0.70	-2.5%
Orange	34.32	33.29	-1.03	-3.0%
Placer	27.18	25.82	-1.36	-5.0%
Plumas	30.99	27.75	-3.24	-10.5%
Riverside	39.14	38.20	-0.94	-2.4%
Sacramento	35.96	36.09	0.13	0.4%
San Benito	44.76	42.24	-2.52	-5.6%
San Bernardino	38.44	39.25	0.81	2.1%
San Diego	35.83	34.50	-1.33	-3.7%
San Francisco	32.04	32.16	0.12	0.4%
San Joaquin	39.29	40.22	0.93	2.4%
San Luis Obispo	33.53	32.15	-1.38	-4.1%
San Mateo	36.11	34.07	-2.04	-5.6%
Santa Barbara	36.71	36.76	0.05	0.1%
Santa Clara	32.83	32.88	0.05	0.2%
Santa Cruz	36.93	37.85	0.92	2.5%
Shasta	32.61	34.13	1.52	4.7%
Sierra	43.66	37.63	-6.03	-13.8%
Siskiyou	30.55	33.50	2.95	9.7%
Solano	38.29	38.44	0.15	0.4%
Sonoma	34.45	35.45	1.00	2.9%
Stanislaus	41.60	40.71	-0.89	-2.1%
Sutter	39.01	35.72	-3.29	-8.4%
Tehama	40.34	38.57	-1.77	-4.4%
Trinity	37.54	26.67	-10.87	-29.0%
Tulare	43.03	43.78	0.75	1.7%
Tuolumne	29.69	29.52	-0.17	-0.6%
Ventura	35.91	35.85	-0.06	-0.2%
Yolo	36.92	36.89	-0.03	-0.1%
Yuba	37.05	41.15	4.10	11.1%
California	**38.44**	**38.00**	**-0.44**	**-1.1%**

Source: Data calculated from the 2005 and 2010 California Physical Fitness Test, California Department of Education.

* Data omitted due to small sample size

Exhibit 2
Map of Change in Overweight and Obesity Prevalence in California Counties from 2005 to 2010

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Convenient access to healthy foods and beverages like water can make achieving a healthy weight easier.

Conclusions and Implications

In California, more than one-third (38%) of fifth-, seventh-, and ninth-grade public school students were overweight or obese in 2010. Overall, the prevalence of overweight and obesity dropped slightly (1.1%) between 2005 and 2010. There was considerable variation from county to county in changes in overweight and obesity. While the prevalence of overweight and obesity declined in 26 of California's 58 counties, it increased in more than half of the counties during this time.

Although the leveling off of the prevalence of overweight and obesity among children and adolescents statewide is encouraging, the increased rates of obesity and overweight in many areas of the state, as well as the continuing high rates across all counties, underscore the critical need for sustained obesity prevention efforts. Environmental and policy options that promote healthy eating and physical activity can contribute to reducing California's overweight and obesity problem, with its related medical conditions and costs.[32] While parents play a critical role in helping their children achieve a healthy weight, there are also many social and environmental factors that influence children's diets and activity levels. Environmental and policy interventions such as school programs to promote physical activity and efforts to reduce marketing of junk food to children can improve conditions for large numbers of families.[33] Targeting efforts toward communities most in need can maximize the impact of such interventions.

The increased rates of obesity and overweight in many areas of the state, as well as the continuing high rates across all counties, underscore the critical need for sustained obesity prevention efforts.

Data Source and Methods

This policy brief examined changes in overweight and obesity among fifth-, seventh-, and ninth-grade schoolchildren in California between 2005 and 2010 as well as geographical variation in weight status among counties. Data were from the California Physical Fitness Test (PFT) from 2005 and 2010. 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. 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.[34,35] This study includes data from 1,137,122 students in 2005 and 1,214,061 students in 2010 with measured height and weight data.

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