



# An Epidemic

# Overweight and Unfit Children in California Senate Districts

## LEGISLATIVE DISTRICT POLICY BRIEF Nº 2

Childhood overweight and physical inactivity have reached epidemic levels in California. These conditions are dooming our children to serious health problems now and in the future, and saddling the state's economy with exorbitant and preventable long-term costs. The crisis is perpetuated by complex social and environmental factors that overwhelm our children's ability to make healthy decisions about eating and physical activity. Given the political will, much can be done to ensure a healthier future for our children.

To understand the extent of the epidemic among California's children, the California Center for Public Health Advocacy analyzed the California Department of Education's 2001 *FITNESSGRAM* data in a unique way—by state legislative district. This analysis, like the Assembly analysis released in December 2002, provides policy makers with a clear picture of childhood fitness among their constituents and gives all Californians a clear picture of childhood fitness in their communities.

## BACKGROUND

### Overweight

#### NATIONAL RATES OF CHILDREN WHO ARE OVERWEIGHT ARE SOARING.

- The National Health and Nutrition Examination Survey (NHANES)<sup>1</sup> data show that the prevalence of overweight among children from six to eleven years old increased nearly four-fold between 1963 and 2000.<sup>2</sup>
- Among adolescents from 12 to 19 years old, the prevalence of overweight increased more than three-fold between 1966 and 2000.<sup>2</sup>

Though the prevalence of overweight in children and adolescents is increasing, the rate of increase is particularly pronounced among certain ethnic groups.<sup>2</sup>

According to the Surgeon General, overweight children face a greater risk of a host of problems, including Type 2 diabetes, high blood pressure, high blood lipids, asthma, sleep apnea, chronic hypoxemia (too little oxygen in the blood), early maturation, and orthopedic problems.<sup>3</sup> Overweight children also suffer psychosocial problems, including low self-esteem, poor body image, and symptoms of depression.<sup>4</sup> For girls in particular, poor self-image from being categorized as obese follows them into adulthood, resulting in fewer years of completed education, lower family incomes, and higher rates of poverty, regardless of their initial socioeconomic background.<sup>5</sup> Obese children are also hospitalized more often than children with healthy weight.<sup>6</sup>

## Terms and Definitions

### AEROBIC CAPACITY:

A *FITNESSGRAM* measure that reflects the fitness of the cardiovascular and respiratory systems and the ability to engage in strenuous exercise for prolonged duration. Aerobic capacity is determined in the *FITNESSGRAM* by running and walking tests. Data from the aerobic capacity measure were analyzed in this study.

### BODY COMPOSITION: A

*FITNESSGRAM* measure to assess weight as determined by Body Mass Index or percent of body fat. *FITNESSGRAM* data on body composition were analyzed in this study.

### BODY MASS INDEX

**(BMI):** A ratio measurement of weight to height that is used to categorize individuals as underweight, normal, at risk for overweight, or overweight.

***FITNESSGRAM*:** An assessment protocol created by the Cooper Institute (Dallas) that measures a number of health-related aspects of a child's fitness in a multi-test format. Aerobic

capacity and body composition are the two FITNESSGRAM measures analyzed in this study.

### **HEALTHY FITNESS ZONE (HFZ):**

The FITNESSGRAM'S scoring of fitness test outcomes. A score of "within the Healthy Fitness Zone" indicates the person has the minimum level of fitness related to the specific test thought to provide some protection from health risks.

**OBESITY:** An excess in body fat relative to lean muscle mass. This term is no longer favored to describe children. "Overweight" is the preferred scientific term.

**OVERWEIGHT:** Used in this paper to describe children who scored above the Healthy Fitness Zone for body composition. This definition differs from the one employed by the Centers for Disease Control and Prevention (CDC). (Refer to the full report of this study for more information.) Studies cited in this Brief may use a different definition of "overweight" than the one used in this study.

**PHYSICAL FITNESS:** The ability to carry out daily tasks with vigor and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and to meet unforeseen emergencies.

**PHYSICAL ACTIVITY:** Participation in moderate to vigorous physical activity for at least thirty minutes per day on most days of the week.

Because overweight children are likely to become overweight adults, these children are more liable to suffer from cardiovascular disease, cancer, and diabetes in adulthood—all chronic, but largely preventable diseases that already account for two-thirds of all deaths in California.

## *Physical Inactivity*

**THE MAJORITY OF CHILDREN OF ALL AGES IN THE UNITED STATES DO NOT GET ENOUGH PHYSICAL ACTIVITY; FULLY ONE-THIRD ARE CONSIDERED PHYSICALLY INACTIVE.**<sup>7</sup>

- Data from the 2001 Youth Risk Behavior Survey (YRBS) show that more than 30% of the youth responding did not participate in either moderate or vigorous physical activity over the previous week,<sup>7</sup> compared to 14% in 1996.<sup>8</sup>
- Only 3% of respondents to the 2001 YRBS met the Healthy People 2010 Objective for continuous vigorous physical activity.<sup>9</sup>
- According to the YRBS survey, only 52% of students in the U.S. were enrolled in a physical education class, and only 32% attended a physical education class daily.

Physical fitness has a key role in children's health by keeping the cardio-respiratory system, joints, and muscles healthy and strong.<sup>10</sup> Physically fit children are less likely to suffer from chronic diseases both as children and as adults. Regular physical activity helps to maintain healthy weight and prevent overweight.<sup>11</sup> Moreover, physically active children are more likely to be physically active adults, with much lower risks for diabetes and heart disease.<sup>8</sup>

## *Economic Costs*

This combination of overweight and physical inactivity results in significant medical and financial resources being expended in the treatment of overweight youth and obese adults. As the percentage of children who are overweight rises, and as these children age, the health problems they face will burden California with growing costs for medical care, lost productivity and human resources.

- From 1979 to 1999, national costs associated with childhood obesity increased three-fold, from \$35 million to \$127 million.<sup>6</sup>
- Based on the Surgeon General's (2001) assessment of the annual national cost of obesity, (including direct medical costs and costs attributed to illness, disability, and premature death), and based on population, the estimated cost of obesity in California is \$14.2 billion.
- Medical care costs associated with obesity are greater than those associated with both smoking and problem drinking.<sup>12</sup>

## *Causes of the Epidemic*

The high prevalence of overweight and physical inactivity is caused by numerous individual, social, and environmental factors. The epidemic is perpetuated by conditions including, but not limited to, the following: increasing portion sizes, increasing consumption of fast food and soft drinks, lack of funding for nutrition and physical activity programs, availability of soda and junk food on school campuses, poor physical activity infrastructures in schools and communities, limited compliance with physical education requirements in many schools, limited access to healthy foods in low-income neighborhoods, and advertising of junk food to children and their families.

# THE STUDY

In 1995 California law mandated statewide physical performance testing for all fifth, seventh, and ninth graders at least every two years. The six measures of the *FITNESSGRAM* assessment tool, developed by the Cooper Institute in Dallas, Texas, are used to test fitness levels of California children each spring. Individual performance on the *FITNESSGRAM* measures is classified as either “in the Healthy Fitness Zone” or “not in the Healthy Fitness Zone,” with Healthy Fitness Zone describing the minimum level of fitness thought to provide some protection from health risks. The California Department of Education collects and analyzes *FITNESSGRAM* data annually and reports findings to the Governor and Legislature.

The California Center for Public Health Advocacy (the Center) analyzed data from two of the *FITNESSGRAM* measures of the 2001 assessment, body composition and aerobic capacity, by Assembly District\* and Senate District for all students and stratified by grade, gender, and ethnicity. Senate Districts used in this study are based on the 2000 Census; however, while even-numbered districts became effective in the November 2002 elections, odd-numbered districts will not become effective until the 2004 election. The Center convened a Scientific Panel of nationally recognized experts in nutrition, physical activity, physical education, and social marketing to provide advice about how best to analyze the data and to recommend policies addressing childhood overweight and inactivity.

The body composition measure of *FITNESSGRAM* was used as the indicator of weight in this study. The aerobic capacity measure was used as the indicator for fitness for this study because it reflects the fitness of the cardiovascular and respiratory systems and the ability to engage in strenuous exercise for prolonged duration. Cardiovascular and respiratory fitness have been shown to reduce adult risk of high blood pressure, coronary heart disease, obesity, diabetes, and some forms of cancer.<sup>3</sup>

For the purposes of this analysis, children were classified as “overweight” if their body composition measurement was above the Healthy Fitness Zone and as “unfit” if their aerobic capacity score was below the Healthy Fitness Zone. These results can be expected to differ from studies using criteria other than the Healthy Fitness Zone.

# THE FINDINGS

## Principal Finding

**THERE ARE HIGH RATES OF OVERWEIGHT AND UNFIT CHILDREN IN ALL 40 SENATE DISTRICTS—EVEN IN THOSE DISTRICTS WITH THE LOWEST RATES.<sup>13</sup>**

- In 23 of the 40 Senate Districts (57.5%), at least one child out of four (25%) is overweight. In the Senate District with the highest percentage of overweight children, 35% of the children are overweight; in the district with the lowest percentage of overweight children, the rate is still high at 18.3% (see Figure 1).
- In all 40 Senate Districts (100%), at least 30% of the children are unfit. In the district with the highest percentage of unfit children, 53.6% are unfit. In the district with the lowest rate, 30% of the children are unfit (see Figure 1).

The maps on the following pages illustrate the magnitude of the statewide problem. Across all districts statewide, 26.5% of the children are overweight and 39.6% of the children are unfit. Map A shows the percentage of children in each Senate District who are overweight; Map B shows the percentage of children in each Senate District who are unfit. On each map, Senate Districts are shaded according to the percentage of unfit or overweight children in that district, with each degree of shading representing one-fifth of the 40 Senate District scores.

**RATE ACROSS ALL SENATE DISTRICTS:** *The percentage of all students in California who were unfit or overweight.*

**SCIENTIFIC PANEL:** *The experts in nutrition, physical activity, physical education, and social marketing convened by the California Center for Public Health Advocacy to provide advice about how best to analyze the 2001 FITNESSGRAM data and to recommend policies addressing childhood overweight and inactivity. Panel members are listed on page 8.*

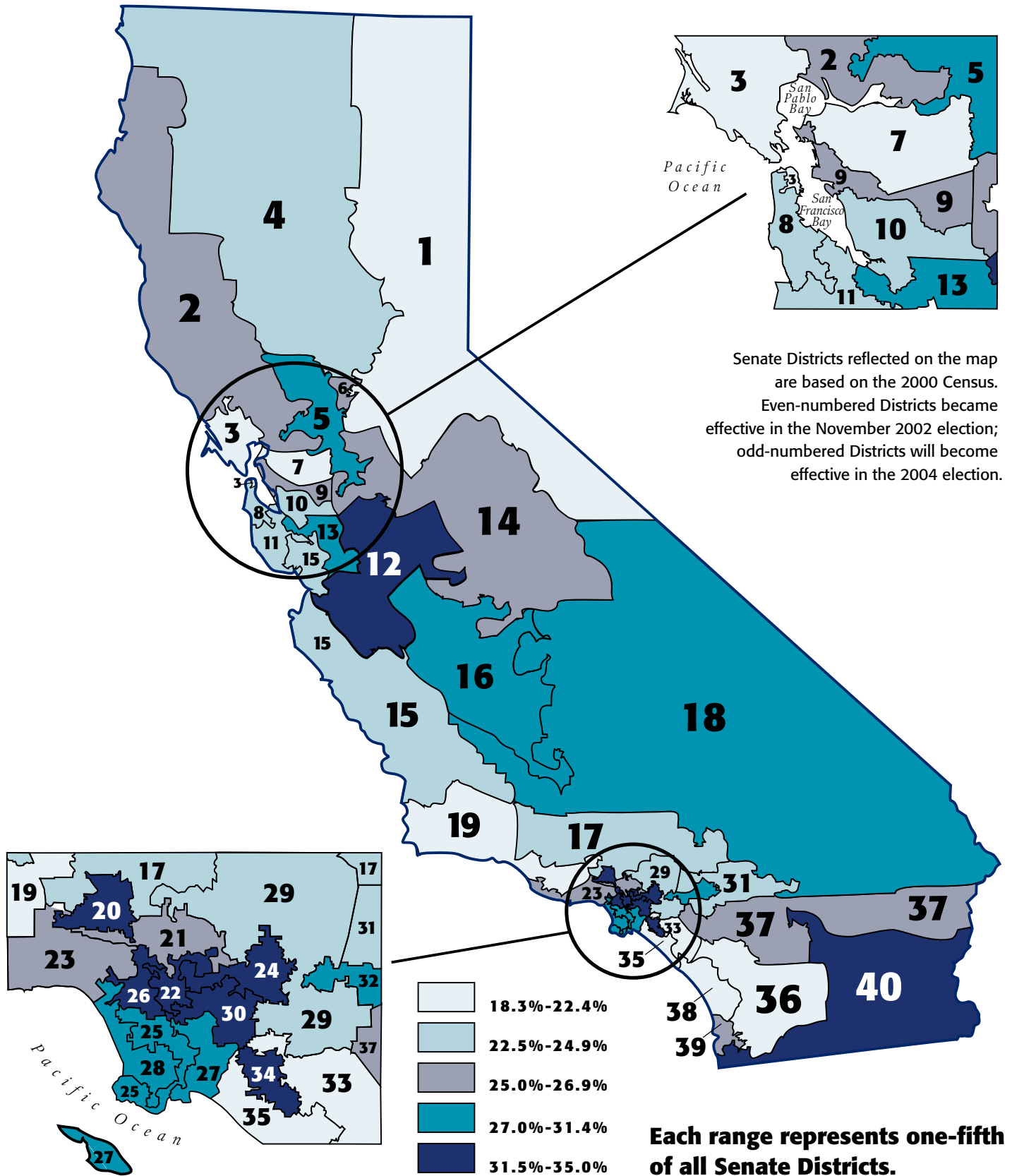
**SENATE DISTRICT:** *A geographic area that contains 1/40th of the population of California. That population elects an individual to represent their interests in the California State Senate. There are 40 Senate Districts, apportioned by population every decade.*

**UNFIT:** *Used in this paper to describe children whose aerobic capacity score was below the Healthy Fitness Zone. (Some members of the Scientific Panel were not comfortable identifying all children below the Healthy Fitness Zone as “unfit.” They preferred the term “under-fit” because it recognizes a continuum of aerobic capacity fitness below the Healthy Fitness Zone.)*

*\*The Assembly District analysis is available from the Center.*

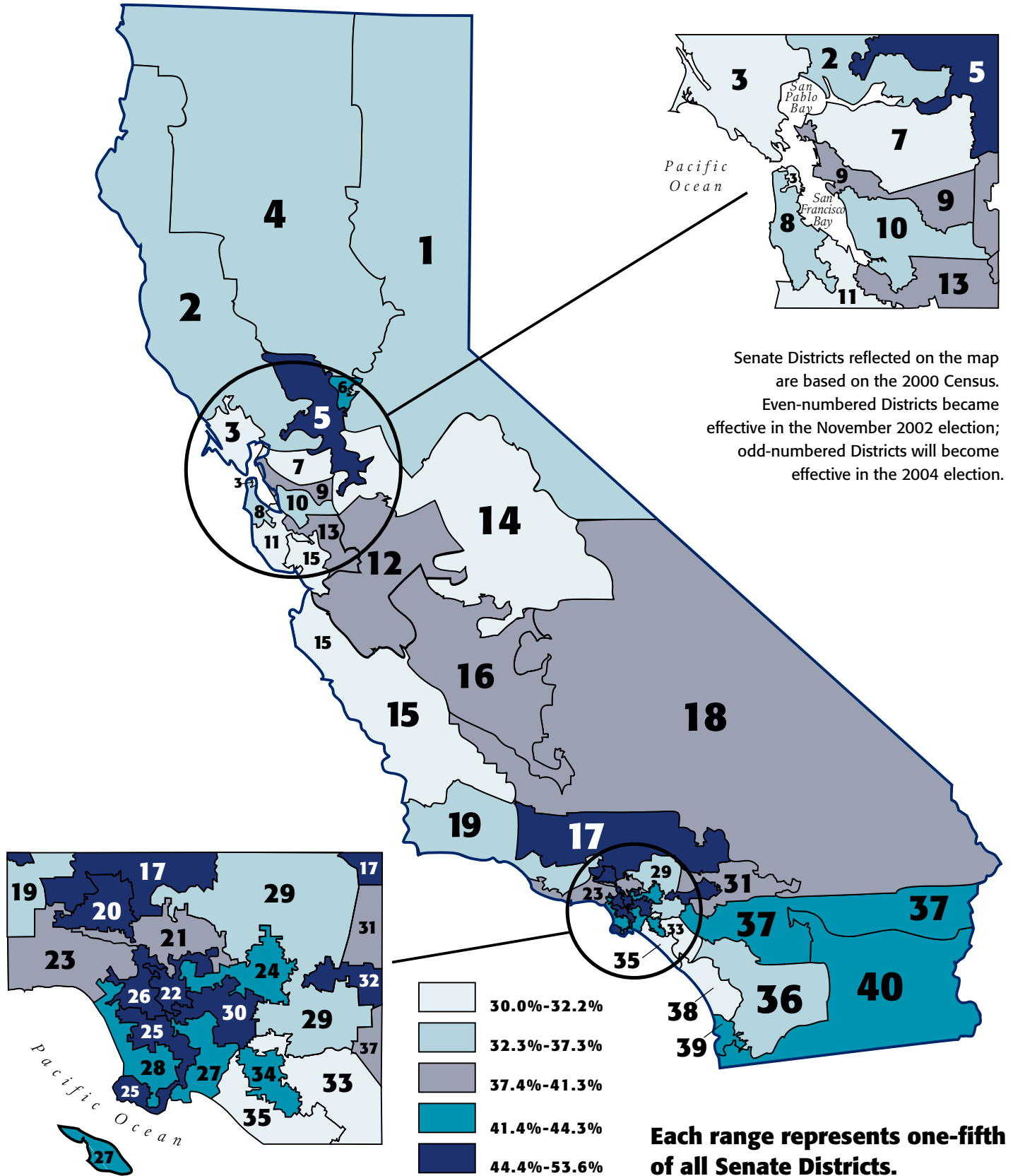
# MAP A

## Percentage of Children in Each Senate District Who Are Overweight



## MAP B

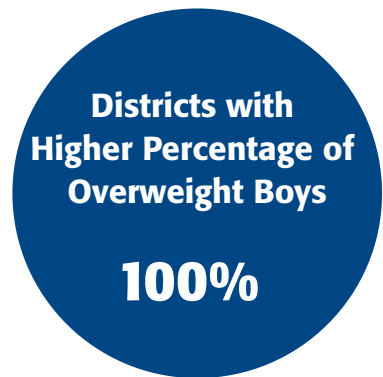
# Percentage of Children in Each Senate District Who Are Unfit



**HOW THIS ANALYSIS DIFFERS FROM CDE'S ANALYSIS**

The California Department of Education (CDE) conducts an annual analysis of FITNESSGRAM data. The analysis presented here differs from that of CDE in the following ways:

- Based on the recommendations of the Scientific Panel, this study is based on two of the six FITNESSGRAM measures: body composition and aerobic capacity.
- Based on the recommendations of the Scientific Panel, for body composition the analysis distinguishes between students who scored above the Healthy Fitness Zone (overweight children), and students who scored below (underweight children). For aerobic capacity the analysis focuses only on those students scoring below the Healthy Fitness Zone.
- The Center aggregated the data into Senate Districts, rather than reporting by county, school district, and school.



**Figure 2**

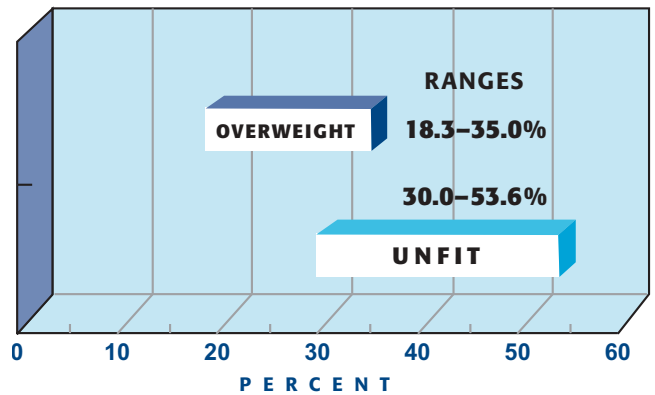
In every Senate District, the percentage of overweight boys is greater than the percentage of overweight girls.

**Other Key Findings**

**LOS ANGELES COUNTY SENATE DISTRICTS HAVE PARTICULARLY HIGH RATES OF OVERWEIGHT AND UNFIT CHILDREN. (SEE MAPS A AND B.)**

- All four Senate Districts in the state with the highest percentages of both overweight and unfit children are in Los Angeles County.
- Of the eight Senate Districts with the highest percentages of overweight children, five are in Los Angeles County.
- Of the eight Senate Districts with the highest percentages of unfit children, five are in Los Angeles County.

**Figure 1**— Ranges of Overweight and Unfit Children in Senate Districts



**THERE IS CONGRUENCE WITH SENATE DISTRICTS THAT HAVE EITHER THE HIGHEST OR LOWEST PERCENTAGES OF OVERWEIGHT AND UNFIT CHILDREN.**

- Four Senate Districts have among the highest percentages of both overweight and unfit children. Five districts have among the lowest percentages of both overweight and unfit children.

**SENATE DISTRICTS HAVE HIGHER RATES OF OVERWEIGHT BOYS THAN OVERWEIGHT GIRLS.**

- In every Senate District (100%), the percentage of overweight boys is greater than the percentage of overweight girls (see Figure 2).
- In 37 of the 40 Senate Districts (92.5%), at least one boy in four (25%) is overweight.

**SENATE DISTRICTS HAVE HIGHER RATES OF UNFIT GIRLS THAN UNFIT BOYS.**

- In 34 of the 40 Senate Districts (85.0%), the percentage of unfit girls is greater than the percentage of unfit boys (see Figure 3).

**THOUGH CHILDREN IN ALL GRADES ARE OVERWEIGHT AT HIGH RATES, THE PERCENTAGES OF OVERWEIGHT CHILDREN IN SENATE DISTRICTS DECREASES FROM ELEMENTARY SCHOOL TO HIGH SCHOOL.**

- In 35 of the 40 Senate Districts (87.5%), there are higher percentages of overweight fifth graders than ninth graders.
- Across all Districts statewide, 28.2% of the fifth graders, 27.0% of the seventh graders, and 23.6% of the ninth graders are overweight.

**THE PERCENTAGE OF UNFIT CHILDREN IN SENATE DISTRICTS INCREASES FROM ELEMENTARY SCHOOL TO HIGH SCHOOL.**

- In 29 of the 40 Districts (72.5%), there are higher percentages of unfit ninth graders than unfit fifth graders (see Figure 4).

**THOUGH ALL ETHNIC GROUPS HAVE HIGH RATES OF OVERWEIGHT AND UNFIT CHILDREN, THERE ARE HIGHER PERCENTAGES AMONG CERTAIN ETHNICITIES.<sup>14</sup>**

- Across all Districts statewide, 33.7% of Latino children are overweight and 44.5% are unfit.
- Across all Districts statewide, 28.6% of African-American children are overweight, and 46.0% are unfit.
- Across all Districts statewide, 20.2% of White children are overweight, and 33.5% are unfit.
- Across all Districts statewide, 17.5% of Asian children are overweight and 35.7% are unfit.

## PRIORITY RECOMMENDATIONS

Unless dramatic action is taken to reform state and local policies, many of California's children will face a lifetime of poor health; furthermore, the state's economy will be burdened with additional long-term costs. The California Center for Public Health Advocacy calls on policy makers throughout the state to take clear and direct action to address this serious situation in order to ensure a healthier future for our children. The Center's recommendations are based on those made by the Scientific Panel.

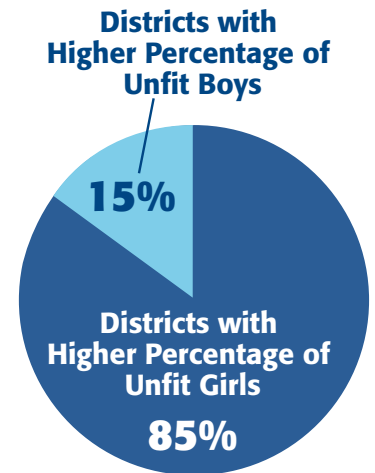
### *Immediate Actions*

1. The Governor should declare this epidemic a public health emergency and immediately convene a summit of government, health, education, business and nonprofit leaders to identify immediate strategies to address the emergency.
2. Every legislator should consider how best to address the epidemic.
3. Every legislator should convene a District forum of community leaders within six months to identify immediate strategies to address the emergency locally.

### *Policies for 2003*

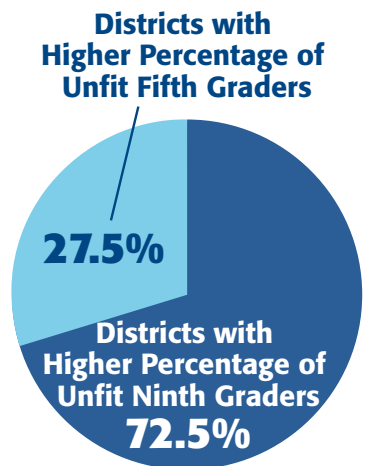
1. Enforce state law mandating 200–400 minutes of physical education every 10 days in grades 1–12.
2. Fund and implement State law outlining elementary school nutrition standards (SB 19, 2001). While there is a cost to implement the nutrition standards, these costs would be less than the long-term economic consequences that could arise if elementary schools are permitted to sell soda and junk food.
3. Hold Legislative hearings to examine the impact that advertising to children has on the epidemic.
4. Ensure that every school has operable water fountains.
5. Continue administering the *FITNESSGRAM* test annually and continue reporting findings to the Governor and the Legislature annually.
6. Implement the Physical Education Framework for California Public Schools K–12—a key and fundamental resource for developing physical education programs endorsed by the State Board of Education—in every school district.

[continued on page 8]



**Figure 3**

In more than four-fifths of the Senate Districts, the percentage of unfit girls is greater than the percentage of unfit boys.



**Figure 4**

In more than two-thirds of the Senate Districts, there are higher percentages of unfit ninth graders than unfit fifth graders.

# Policies for the Next Four Years

1. Ensure that nutrition and physical education are given equal priority to other academic subjects by:
  - Providing professional development for physical education and nutrition education teachers.
  - Reducing physical education class size to conform to class size of other subjects.
  - Utilizing evidenced-based nutrition, health education and physical education curricula.
2. Ensure that physical activity is included in all state-supported after-school and childcare programs.
3. Middle schools, high schools, after-school programs and childcare programs should implement the nutrition standards established by SB 19.
4. The California State University and the University of California system should accept physical education grades as part of a student's grade point average submitted for college admission.
5. Bond measures should be used to raise funds to improve physical education facilities, community infrastructure that supports physical activity, and school cafeterias.
6. State and local agencies should develop a "physical activity impact statement" as a method of determining the impact of community development on the ability of children and their families to be physically active.
7. Local health departments should make promotion of healthful nutrition and physical activity top priorities.
8. The University of California should conduct research to determine whether and how income and ethnicity affect fitness. Findings and recommended policy changes should be reported to the Legislature.

## Notes

<sup>1</sup>The NHANES data were analyzed using the CDC's definition of overweight.

<sup>2</sup>Ogden, CL, et al., *J Am Med Assoc.* 2002; 288: 1728-1732.

<sup>3</sup>USDHHS. *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity.* Atlanta, GA, 2001.

<sup>4</sup>UCB/Coop. Extension. *Childhood Overweight: A Fact Sheet for Professionals.* Crawford et al., UC Berkeley, Jan. 2000.

<sup>5</sup>Dietz, WH, *J Nutr.* 1998; 128(2): 411S-414S.

<sup>6</sup>Wang, G, and Dietz, WH, *Pediatrics.* 2002; 109(5): E81-1.

<sup>7</sup>CDC. *Youth Risk Behavior Surveillance System: United States Summary Results 2001.* Atlanta, GA, 2001.

<sup>8</sup>USDHHS. *Physical Activity and Health: A Report of the Surgeon General.* Atlanta, GA, 1996.

<sup>9</sup>Pate RR, et al., *Ann Epidemiol.* 2002; 12(5): 303-308.

<sup>10</sup>Woodward-Lopez, G, et al., *Improving Children's Academic Performance, Health, and Quality of Life.* CEWAER and UC Berkeley, 2000.

<sup>11</sup>DeLany JP, et al., *Am J Clin Nutr.* 2002; 75(4):705-713.

<sup>12</sup>Sturm, R, *Health Affairs (Millwood).* 2002; 21(2): 245-253.

<sup>13</sup>See Terms and Definitions for the technical meaning of the terms "overweight" and "unfit."

<sup>14</sup>The appropriate data were not available for this analysis to determine whether these findings are a function of ethnicity or socioeconomic factors.

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The CCPHA is an independent, nonpartisan, nonprofit organization founded by the California Public Health Association-North and the Southern California Public Health Association.

## DATA SOURCE

The findings of this analysis were based on an analysis of the California Physical Fitness Test 2001. The California Department of Education provided this data to the CCPHA. Dr. Chi Kao of the Institute for Health Policy Studies at the University of California at San Francisco conducted data management and analysis.

## AUTHOR INFORMATION

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The views expressed in the Policy Brief are those of the CCPHA and do not necessarily represent the viewpoints of members of the Scientific Panel and their institutions.

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Fact sheets for each of the 40 Senate Districts can be found at [www.publichealthadvocacy.org](http://www.publichealthadvocacy.org). Also available on the web are fact sheets for the 80 Assembly Districts, the brief, *An Epidemic: Overweight and Unfit Children in California Assembly Districts*, and a background report to the Assembly and Senate Briefs.

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