

**Fruit and Vegetable Consumption in California,
Results from the *California Dietary Practices Survey*,
1989-1999**

**California Department of Health Services
Cancer Prevention and Nutrition Section**

*Prepared by
The Public Health Institute*



Gray Davis, Governor
State of California

Grantland Johnson, Secretary
California Health and Human Services Agency

Diana M. Bonta, R.N., Dr. PH, Director
California Department of Health Services



The following initiatives are conducted by the California Department of Health Services and administered in part by the Public Health Institute. Funding is made possible by The California Endowment, the Centers for Disease Control and Prevention, the in-kind contributions of State and local agencies, and the U.S. Department of Agriculture's Food Stamp Program, an equal opportunity provider, in partnership with the California Department of Social Services.

This Report

This report highlights the most important trends in fruit and vegetable consumption over the 10-year period from 1989 to 1999, and it contains important new information from the *California Dietary Practices Survey (CDPS)*. This report addresses the latest public health recommendations about eating more fruits and vegetables and reveals:

- Important trends and emerging disparities in fruit and vegetable consumption;
- Improvements in public opinion;
- New barriers to eating more fruits and vegetables;
- Widening gaps in fruit and vegetable consumption based on where people eat; and
- Opportunities for policy and environmental solutions

What does the latest research show about the colors of fruits and vegetables?

Simply put, research indicates that the more colors of fruits and vegetables you see on your plate, the greater the health benefits. Groups of fruits and vegetables, signified by their colors, contain phytonutrients that help reduce chronic disease risk. The major color groups are green, red, yellow/orange, blue/purple, and white. For example, green vegetables such as broccoli and brussel sprouts and green fruits like kiwi and honeydew melon contain indoles and lutein, respectively. Indoles may reduce the risk of cancer, particularly of the breast and prostate. Lutein helps maintain good vision and reduces the risk of cataracts¹.

¹ National Cancer Institute (2002). Savor the spectrum: color your daily diet with fruits and vegetables. Washington, DC: National Cancer Institute.

Are 5 servings a day of fruits and vegetables enough?

The vision of the National 5 a Day Partnership, a broad collaboration of public health and produce industry members, is to increase consumption to at least 5 servings a day of fruits and vegetables by all Americans by 2010.² However, for most people, 5 servings a day of fruits and vegetables is only a starting point. According to the U.S. Dietary Guidelines, older children, teenage girls, active women, and most men need 7 or more servings, while teen boys and active men should be aiming for 9 daily servings.³

What are the health benefits of eating more fruits and vegetables?

Eating more fruits and vegetables can help reduce the risk of serious health problems, including about 20 percent of cancer⁴. There is convincing evidence that eating 5 to 9 daily servings of fruits and vegetables will reduce the risk of heart attack, hypertension, stroke, diabetes, obesity, certain lung diseases, gastrointestinal problems, birth defects, and signs of aging⁵.

² Centers for Disease Control (2002). <http://www.cdc.gov/nccdphp/dnpa/5aday/partnerplan>. Accessed 7/1/02.

³ U.S. Dept. of Agriculture, U.S. Dept. of Health and Human Services (2000). Dietary Guidelines for Americans. 5th Edition, Home and Garden Bulletin No. 232.

⁴ World Cancer Research Fund, American Institute for Cancer Research. (1997). Food, Nutrition and the Prevention of Cancer a Global Perspective. Washington D.C.: Published by the American Institute for Cancer Research. Page 539.

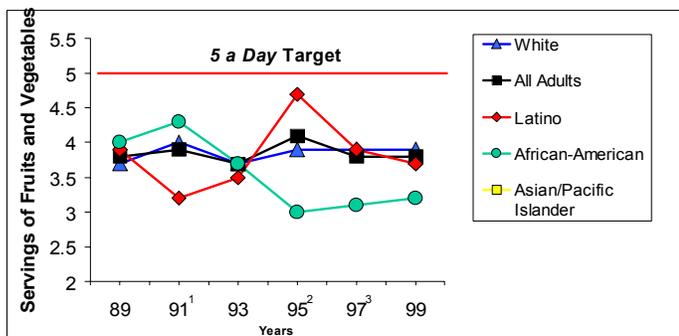
⁵ Hyson D. (2001). The health benefits of fruits and vegetables, a scientific overview for health professionals. Wilmington, DE: Produce for Better Health Foundation

SURVEY FINDINGS

Are there differences in fruit and vegetable consumption among demographic groups of Californians?

Differences among racial/ethnic, income, and educational groups widened between 1989 and 1999. For California adults, fruit and vegetable consumption peaked in 1995. Over the last ten years, consumption increased during the first *California 5 a Day Campaign* in 1989-1991, dropped when the *Campaign* ended, rose again with the peak of the *National 5 A Day Program* in 1995 and then dropped in 1997 as publicity about the *Program* waned. For Latino Californians, the 1991 drop in consumption was reversed in 1995, concurrent with the introduction of the Spanish-language *Latino 5 a Day Campaign*. For African American Californians, however, intake began decreasing in 1991. For Asian/ Pacific Islander Californians new information for 1999 shows consumption levels similar to Latino adults.

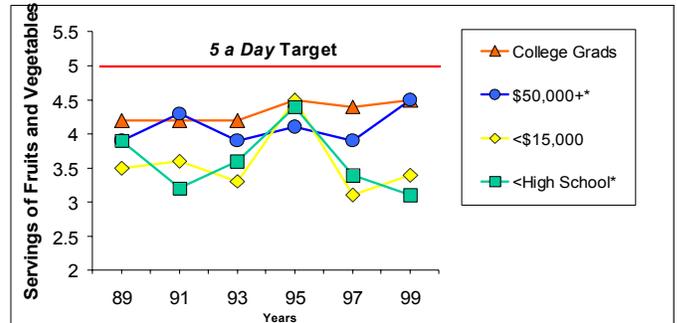
Figure 1: 10-year trends in fruit and vegetable consumption have been flat except following campaigns California Adults, 1989-1999



¹Prototype for 5 a Day Campaign ended; ²1st Latino 5 a Day Campaign peaked; ³Launch of California Nutrition Network
Source: California Dietary Practices Survey; California Department of Health Services, 2002

Over ten years, the lowest income Californians consistently reported eating fewer servings of fruits and vegetables than those with household incomes greater than \$50,000, the highest income category in the survey. The gap has nearly tripled during these years. An even greater difference was seen by education level, where the gap widened significantly more in 1997 and 1999. Finally, in spite of national consensus that most adults should aim for 7 to 9 daily servings of fruits and vegetables, consumption in California has been flat over the last ten years.

Figure 2: Disparities in total fruit and vegetable consumption increased California Adults, 1989-1999

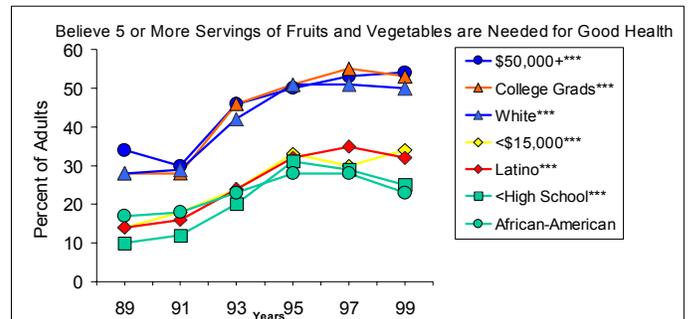


* Change between 1989-1999 is statistically significant at the p<.05 level.
Source: California Dietary Practices Survey; California Department of Health Services, 2002

Belief About Eating Enough Fruits and Vegetables for Good Health

During the same period, there has been a strong upward trend in Californians' belief that they need at least 5 daily servings of fruits and vegetables for good health. Belief about a number of servings to eat each day is important because it is highly related to consumption. For the general adult population, the belief that 5 servings is needed nearly doubled between 1989 and 1995, rising a highly significant 20 percentage points to 44 percent of all adults by 1995, when California's consumption was highest.

Figure 3: The proportion of adults who believe eating 5 or more servings of fruits and vegetables is important has risen dramatically California Adults, 1989-1999



*** Change between 1989 and 1999 is statistically significant at the p<.001 level.
Source: California Dietary Practices Survey; California Department of Health Services, 2002

Since 1995, however, there have been no further increases. In fact, for the first time in 1999, there was a slight decrease, and the gaps widened enough to be significantly different among the several ethnic, education and income groups. With belief in the importance of eating 5 a Day so much higher than in 1989, why hasn't California consumption gone up?

Barriers to eating more fruits and vegetables have risen

Californians have consistently cited factors in their environment as the main reasons they did not eat more fruits and vegetables. From 1995 to 1997 the proportion of adults naming work or restaurant/fast food as barriers rose 50 percent, from about 40 percent to nearly 60 percent of all adults. In 1999, the proportion of Californians who said that it was hard to get fruits and vegetables at work rose to almost 65 percent.

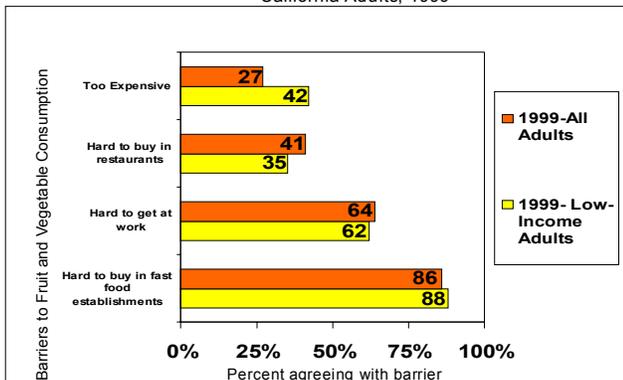
In 1999, the survey asked about fast food restaurants and other types of restaurants separately for the first time. This revealed that nine out of ten adults saw fast food as a barrier, compared to one in three for other types of restaurants. The groups that reported fast food as a barrier most often were men, 25-34 years of age (97 percent), white (91 percent) and Asian/Pacific Islander (90 percent) adults.

Barriers to eating more fruits and vegetables are prevalent

In 1999 the most common barriers that Californians gave were that fruits and vegetables are:

- “Hard to purchase in fast food restaurants” (88 percent)
- “Hard to find at work” (62 percent)
- “Difficult to buy in other restaurants” (35 percent)
- “Too expensive” (27 percent)

Figure 4: Limited availability away from home was the biggest barrier to eating more fruits and vegetables
California Adults, 1999



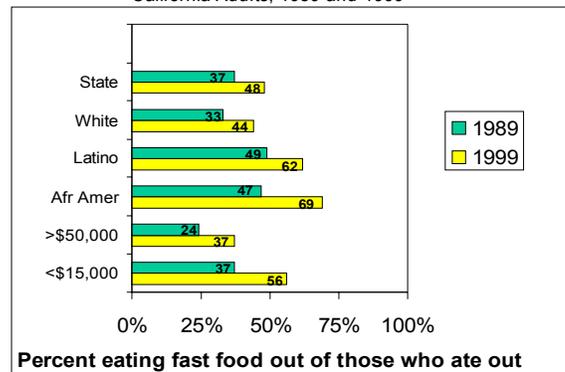
Source: California Dietary Practices Survey; California Department of Health Services, 2002

Cost was a bigger barrier to lower income, as well as to the Latino and less educated groups, all of whom averaged about 40 percent (data not shown).

What has changed in the pattern of eating out?

The proportion of adults who reported eating out at any type of restaurant peaked in 1995 at 48 percent, averaging between 41 and 44 percent in other years. California surveys consistently found that fruit and vegetable consumption was affected by eating away from home, particularly when it was fast food. From 1989 to 1999, the proportion of California adults eating fast food on a typical day rose from 15 percent to 21 percent, a highly significant increase. The percent of eating out that occurred in fast food venues compared to other restaurants also rose, from about one-third in 1989 to nearly half in 1999.

Figure 5: More people are choosing fast food when they eat out
California Adults, 1989 and 1999



Source: California Dietary Practices Survey; California Department of Health Services, 2002

During the 1990's, in which group did fast food use increase most significantly?

- Men, increased by 40 percent (to 48 percent of eating out occasions)
- High school graduates, by almost 50 percent (to 59 percent of eating out)
- Very low income Californians, by 50 percent (to 56 percent of eating out)
- Adults with less than high school education, by 75 percent (to 70 percent of eating out)

In addition, groups that ate fast food most often tended to continue doing so. Eating fast food when eating out rose from nearly half of Latino and African American adults in 1989 to about two thirds by 1999. Although eating out occurred least often among the groups with the lowest incomes and education, rates of increase were among the highest.

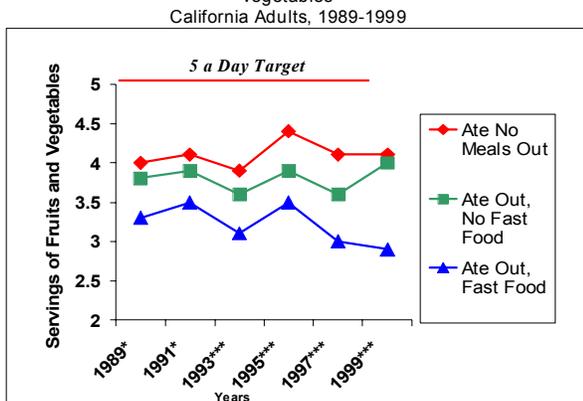
In contrast, the groups with the highest incomes and education were the least likely to choose fast

food in both 1989 and 1999. They were among the few with a downward trend later in the decade.

How are these changes related to eating fruits and vegetables?

In all past surveys, fruit and vegetable consumption has been negatively related to eating away from home, particularly if it was fast food. Adults who reported eating no meals away from home ate significantly more servings of fruits and vegetables than those eating out at any type of restaurant. This pattern appears to be changing. The discrepancy has widened for those eating fast food and narrowed for those eating at other restaurants.

Figure 6: Eating fast food is consistently associated with eating fewer fruits and vegetables



Differences in servings of fruits and vegetables are statistically significant at the $p < .05$ level (*) or the $p < .001$ level (***) Source: California Dietary Practices Survey; California Department of Health Services, 2002

In 1999, those who did not eat out reported consuming 4.1 servings of fruits and vegetables on a typical day; those eating out, but not fast food, ate 4.0 servings, while those choosing fast food consumed 2.9 servings of fruits and vegetables. The consistent differences in number of servings of fruits and vegetables reported between adults who did and did not eat fast food became more significant in 1997 and 1999.

What could be done to help Californians eat 5 to 9 daily servings of fruits and vegetables for better health?

A change in current trends is needed in order to reduce risk of chronic disease and reduce future health-care costs. There is a need to take action now. This survey suggests that two complementary approaches are needed: Increase promotion and marketing, and reduce environmental barriers.

Specific strategies include:

- **For Meals at Home →**
Buy California! Make your meals colorful, interesting, and delicious. The produce industry, grocers and farmers' markets could encourage shoppers to take more advantage of our state's vibrant harvest of fruits and vegetables—green, orange, red, blue/purple, and white. Retailers could intensify their promotion of fresh, frozen, canned and dried fruits and vegetables, as well as 100% juices, and they could put ready-to-eat produce items on special more often.
- **At Fast Food Outlets →**
National chain restaurants could offer new, fun "signature" and value priced entrées and side dishes with plenty of fruits and vegetables—including combo meals and kids' promotions—and market them on television, at point of sale, with merchandise, through cross-promotions and in public relations.
- **At Other Restaurants →**
Owners could give chefs the chance to create new entrees, appetizers, side dishes, and desserts with lots of fruits and vegetables, and then train wait staff to promote them.
- **At Work →**
Workers could ask, and employers could ensure, that a variety of fruits and vegetables be made available in cafeterias and vending machines, that pricing is favorable, and that fruits and vegetables are served at meetings and social events.
- **For Lowest Cost →**
Consumers can shop for fresh fruits and vegetables in season and on special, take advantage of store brands for frozen and canned varieties, patronize farmers' markets, and plant home or community gardens. Retailers can do more to welcome the use of Food Stamps in produce departments and farmers' markets.
- **To Reach Californians at Greatest Risk →**
Nutrition programs need to continue to educate communities about the health benefits of colorful fruits and vegetables, to increase awareness about the need for 5-9 servings, and to increase beliefs, and reduce barriers so that healthy choices are the easiest choices.

Survey Methods

The *California Dietary Practices Survey (CDPS)* of adults has been conducted every other year since 1989. In 1999, 1,492 adults 18 and over were selected by random digit dialing techniques. The response rate was 55 percent. Respondents provided a 24-hour fruit and vegetable dietary recall and answered questions addressing out-of-home eating, physical activity, height and weight, and attitudes and beliefs about these things. Respondents also provided demographic information. A complete trend report will be released in the future.

California Department of Health Services Programs

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California Nutrition Network for Healthy, Active Families (Network)

The *Network* creates community partnerships around the state targeting low-income Californians to adopt healthy eating and physical activity patterns as part of a healthy lifestyle. Specifically, the *Network* seeks to increase Californians' consumption of fruits and vegetables, increase daily physical activity to at least 30 minutes for adults and 60 minutes for children, and achieve full Participation in Federal food assistance programs. In 2002, the *Network* funded over 130 local projects. These included Local Incentive Awardees (LIAs),

Special Projects, such as faith-outreach and food security, and regional coalitions through *5 a Day—Power Play!* regions and California Project LEAN regions.



California 5 a Day—for Better Health! Campaign

The *5 a Day Campaign* is a statewide initiative to encourage Californians to consume 5 or more servings of fruits and vegetables every day as part of a healthy diet and active lifestyle in order to reduce risk of chronic diseases, especially cancer, heart disease, and obesity. Special campaigns include the *Children's Power Play! Campaign*, *The Latino Campaign*, and the *Retail Program*. A partner in California's Campaign is the National 5 A Day Program, a public private partnership led by the National Cancer Institute that includes the CDC, USDA, the American Cancer Society, and the nation's produce industry.



California Project LEAN (CPL)

The twelve CPL regions serve as Local Lead Agencies for the *Network's* projects and other agencies by: 1) involving local organizations that serve low-income consumers and consumer representatives in their coalitions; 2) conducting community-based social marketing interventions; 3) working with local media for publicizing local events that promote healthy eating and physical activity; and 4) supporting the *Network's* social marketing activities.

