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Interagency Board for Nutrition Monitoring and Related Research ·

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Nutrition Monitoring in the United States

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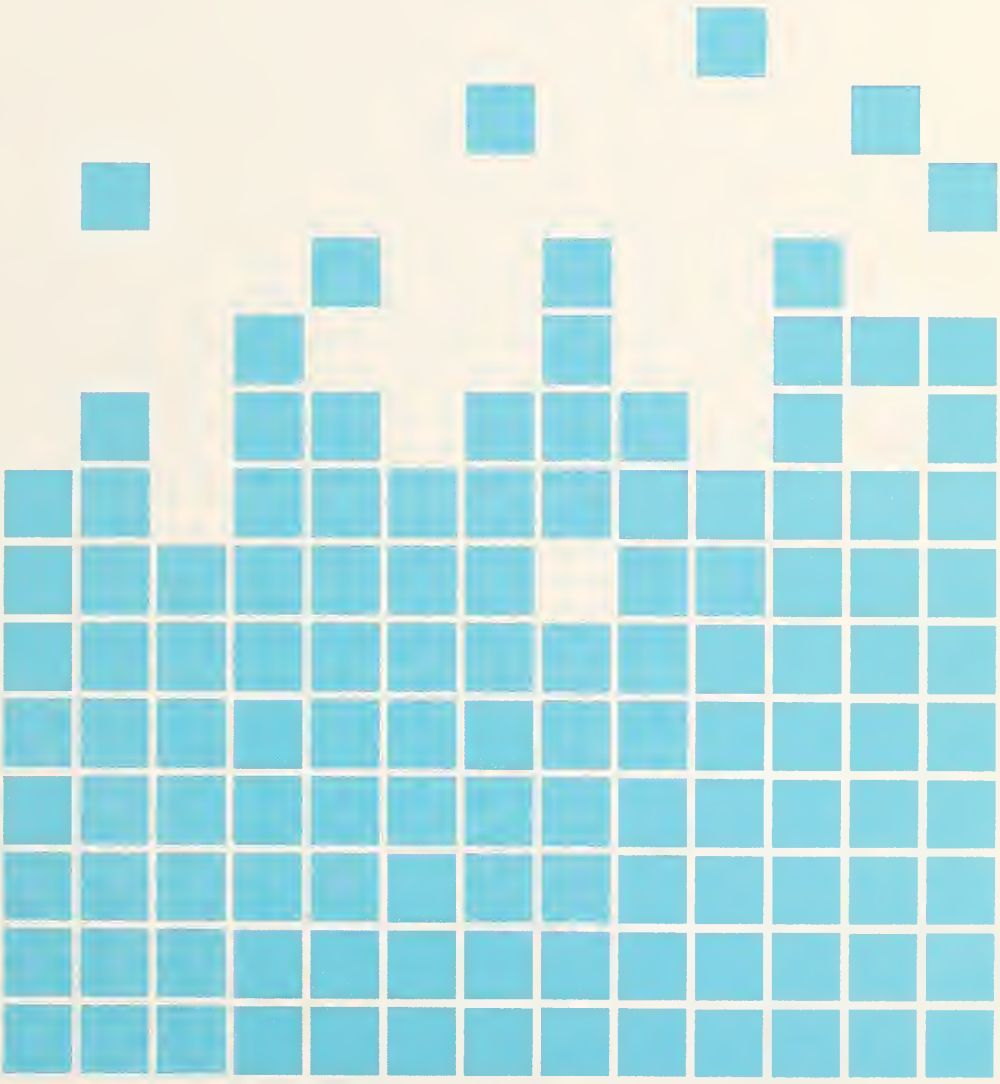

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Contents

List of Figures

Introduction

The National Nutrition Monitoring and Related Research Program (NNMRRP) is composed of interconnected Federal and State surveys, surveillance systems, and other monitoring activities that provide information about the dietary and nutritional status of the United States population, conditions existing in the United States that affect the dietary and nutritional status of individuals, and relationships between diet and health.

In 1990 the National Nutrition Monitoring and Related Research Act (1) was passed. This act strengthened nutrition monitoring and required developing a *Ten-Year Comprehensive Plan for the National Nutrition Monitoring and Related Research Program* (2). The Ten-Year Comprehensive Plan, formally sent to Congress in January 1993, serves as the cornerstone for planning and coordinating nutrition monitoring and related research activities. The primary goals of the plan are to:

- collect quality data that are continuous, coordinated, timely, and reliable;
- use comparable methods for collecting data and reporting the results;
- conduct related research; and
- efficiently and effectively disseminate and exchange information with data users.

The Interagency Board for Nutrition Monitoring and Related Research (IBNMRR) directed the development of the Ten-Year Comprehensive Plan and oversees its implementation. The IBNMRR is composed of 22 Federal agencies and co-chaired by the Assistant Secretary for Health, Department of Health and Human Services (HHS), and the Assistant Secretary for Food and Consumer Services, Department of Agriculture (USDA). The Board agencies and their representatives are listed on pages *iii–v*.

Chartbook I: Selected Findings from the National Nutrition Monitoring and Related Research Program was produced in response to requests from users of nutrition monitoring data for a "user-friendly" source of data interim to the more comprehensive scientific reports mandated by law. This is the first chartbook prepared under the auspices of the IBNMRR.

The Chartbook contains reports from IBNMRR agencies that highlight recent findings or trend data from some of the activities in the Nutrition Monitoring Program. The reports, some of which have been previously published, provide a sampling of the variety of data available in the NNMRRP, and are not a comprehensive review of findings or of Program activities.

The Chartbook is divided into five sections that reflect the five measurement areas of the Nutrition Monitoring Program. They are nutritional status and related health measurements; food and nutrient consumption; knowledge, attitudes, and behavior assessments; food composition and nutrient data bases; and food supply determinations. Certain topics may be covered in reports in different sections of the book. For example, reports related to body mass index are located in two sections: Nutritional Status and Related Health Measurements; and Knowledge, Attitudes, and Behavior Assessments.

The table on pages *xxi–xxiii* summarizes the reports in the Chartbook by type of data collection system and by selected population characteristics. Tables containing the data points for all of the figures are located in the section entitled Data Tables and Notes for Figures.

Many of the Chartbook reports reference the *Recommended Dietary Allowances* (3), the *U.S. Dietary Guidelines for Americans* (4), *Healthy People 2000* (5), and *The Surgeon General's Report on Nutrition and Health* (6). For simplicity, these publications are not referenced each time they appear. Instead, the full citation for each is listed below.

References

1. U.S. Congress. Pub. L. 101–445. National Nutrition Monitoring and Related Research Act of 1990. Washington: 101st Congress. 1990.
2. U.S. Department of Health and Human Services and U.S. Department of Agriculture. Ten-year comprehensive plan for the national nutrition monitoring and related research program. Federal Register. Vol 58 no 111. Washington: 1993.
3. National Research Council. Recommended dietary allowances, 10th ed. Washington: National Academy Press. 1989.
4. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Nutrition and your health: Dietary guidelines for Americans. 3rd ed. Washington: 1990.
5. U.S. Department of Health and Human Services. Healthy people 2000: National health promotion and disease prevention objectives. Washington: Public Health Service. 1990.
6. U.S. Department of Health and Human Services. The Surgeon General's report on nutrition and health. Washington: Public Health Service. 1988.

Considerations for Interpreting the Data

The National Nutrition Monitoring and Related Research Program (NNMRRP) is composed of surveys, surveillance systems, and related research activities that collect data from a variety of sources. The data in this Chartbook vary considerably in terms of source, method of collection, definitions and reference periods. The varied approaches to data collection provide a broad perspective of dietary and nutritional status, but these differences must be kept in mind when comparing findings across the Program. Similarly, the strengths and weaknesses of the different data collection systems must be considered when comparing data across reports. A limited number of definitions and technical notes are included with the Chartbook reports or with the accompanying data tables to help the reader correctly interpret the findings.

The editors have broadly categorized the surveys and related research on which the Chartbook reports are based according to the methods of data collection and the target population. The categorization is intended to provide the reader with additional guidelines for interpreting the data. A symbol to designate each category is located in the source notes accompanying each report; in those reports where more than one data collection system was used in the analysis, each has been assigned a symbol. The symbols representing the data collection categories are also reflected in the Table of Chartbook Reports on page *xxi*, giving the reader some indication of the degree of comparability across reports.

The source notes following each figure identify the organization responsible for the primary data collection used in the reports. More comprehensive source notes, including sponsors, collaborators, and agencies that conducted secondary data analysis, accompany the data tables at the back of the Chartbook.

The results reported in this book are primarily descriptive statistics such as means, percents, rates, or other measurement scales. Based on the types of data presented and the abbreviated nature of these reports, standard deviations, standard errors of the mean, and measures of statistical significance are not described here, but may be reported in other publications. Due to rounding, values in the tables may not add to 100 percent or to the total, if it is reported.

A complete description of many of the surveys referenced in the Chartbook is presented in *Nutrition Monitoring in the United States: The Directory of Federal and State Nutrition Monitoring Activities* (1). The reader is also directed to the references listed with the reports for additional information.

Reference

1. Interagency Board for Nutrition Monitoring and Related Research. Wright J, ed. Nutrition Monitoring in the United States: The directory of Federal and State nutrition monitoring activites. Hyattsville, Maryland: Public Health Service. 1992.

Table of Chartbook Reports: A Classification by Type of Data Collection System and by Selected Population Characteristics

This table provides an overview of selected variables used to analyze the data in the corresponding reports. In addition, listed below are the categories that were developed to describe the different data collection systems referenced in the Chartbook reports.

† **National Surveys**
This category includes national probability sample surveys such as the National Health and Nutrition Examination Surveys (NHANES I and II), the Continuing Survey of Food Intakes by Individuals (CSFII), and the Health and Diet Survey.

¶ **Population Subgroup Studies**
This category includes nonnational probability sample surveys and nonprobability studies of selected subgroups in the U.S. population, such as the Hispanic Health and Nutrition Examination Survey (HHANES), Indian Health Service studies, and military-based population studies.

§ **State-Based Surveillance and Vital Statistics**
This category includes surveillance data collected at the State level and reported as part of State and national surveillance and vital statistics systems. The number of States participating in these surveillance systems varies with the system.

‡ **Related Research**
This category includes case control studies and research on food composition and nutrient analysis.

Table of chartbook reports: A classification by type of data collection system and by selected population characteristics

Title	*Category(ies)*	*Race and ethnicity*[1]	*Sex*[2]	*Age(s)*[3]	*Educational level*[4]	*Income level*[5]
Body Mass Index Among Adults	†,¶	NHW,NHB,MA	M,F	20–74	–	–
Percent of Overweight Among Adults	†,¶	NHW,NHB,MA	M,F	20–74	–	–
Incidence of Major Weight Gain in Adults	†	–	M,F	25–74	–	–
Weight Loss Practices of Overweight Adults	†	–	M,F	18+	–	–
Weight Loss Practices by Body Mass Index	†	–	M,F	18+	–	–
Percent Body Fat of Male Soldiers	¶	–	M	–	–	–
Adults Needing Lipoprotein Analysis and Intervention	†,¶	W,B,MA,PR,C	–	20–74	–	–
Nutrients and Cataract Prevention	‡	–	–	40–70	–	–
Maternal Weight Gain	†,§	W,B	F	–	–	–
Maternal Anemia During Pregnancy	§	W,B	F	<20–49	–	–
Anemia Among Low-Income Women During Pregnancy	§	NHW,NHB,H,AI,A/PI	F	–	–	L
Alcohol Consumption Among Pregnant Women	§	–	F	18–45	–	–
Breastfeeding Trends	†	W,B	F	–	<12,12,>12	–
Low Birth Weight	§	AR,W,B,AI/AN	–	<15–40+	–	–
Infant Mortality Rates	§	AR,W,AI/AN	–	<1	–	–
Growth Status of Children	§	NHW,NHB,H,AI,A/PI	–	2–5	–	L
Life Expectancy	§	AR,W,AI/AN	M,F	N/A	–	–
Leading Causes of Death for American Indians and Alaska Natives	§	AI/AN	–	AA	–	–
Dietary Changes Over 12 Years	†	–	–	AA	–	–
Fruit and Vegetable Consumption	†	–	M,F	18+	–	–
Intakes of Milk and Milk Products	†	–	–	AA	–	L,M,H
Food Sources of Calcium Among Hispanics	¶	MA,PR,C	–	11–74	–	–
Apparent Per Capita Alcohol Consumption	§	–	–	14+	–	–
Apparent Per Capita Alcohol Consumption by State	§	–	–	14+	–	–
Alcohol Consumption Among Individuals	†	B,W	M,F	–	–	–
Mean Food Energy Intakes	†	–	M,F	1–70+	–	–
Sources of Food Energy Among Hispanics	¶	MA,PR,C	M,F	20–74	–	–
Percent of Food Energy From Dietary Fat	†	–	–	AA	–	–
Fat Consumption in the Military	¶	–	–	–	–	–
Cholesterol Intakes Among Hispanics	¶	MA,PR,C	M,F	0.5–74	–	–
Nutrient Intakes Among Adults	†	–	M,F	20+	–	–
Carotenoid Intakes Among Hispanics	¶	MA,PR,C	M,F	0.5–74	–	–
Selected Mineral Intakes	‡	–	M,F	0.5–65	–	–
Iron Intakes Among Hispanics	¶	MA,PR,C	M,F	0.5–74	–	–
Calcium Intakes	†,¶	NHW,NHB,MA,PR,C	M,F	11–74	–	–
Vitamin and Mineral Supplement Use Among Adults	†	–	M,F	18+	–	–
Vitamin and Mineral Supplement Use by the Elderly	¶	–	M,F	60+	–	–
Domestic Food Assistance Programs: Participation and Expenditures	†	–	–	N/A	–	–
Food Expenditures	†	NHW,NHB,H	–	AA	–	L,H
Household Food Consumption and Expenditures	†	–	–	AA	–	Q
The Thrifty Food Plan	‡	N/A	N/A	N/A	N/A	N/A
Awareness of Diet-Health Relationships	†	W,B	F	18+	–	–
Awareness of Specific Diet-Disease Links	†	–	–	18+	<12,12,>12	–
Perceived Importance of Dietary Guidance on Fat and Cholesterol	†	–	F	15–50+	–	–
Use of Selected Nutrition-Related Medical Services	†	–	M,F	AA	–	–
Sodium-Reducing and Cholesterol-Lowering Diets	†	–	–	18+	–	–
Nutrition and Cancer Prevention Knowledge	†	–	–	18+	<12,12,>12	–
Worksite Health Promotion Activities	†	N/A	N/A	N/A	N/A	N/A
Perceptions of Body Weight Status	†	–	F	–	–	–
Perceived Control Over Body Weight	†	W,B	F	–	–	–
Body Mass Index and Leisure Time Activities	†	–	F	20–49	–	–
Leisure Time Activities and Selected Behaviors	†	–	F	20–49	–	–
Evaluation of Food Label Formats	‡	N/A	N/A	N/A	N/A	N/A
Nutrition Labeling and Food Composition	‡	N/A	N/A	N/A	N/A	N/A
Carbohydrate Content of Foods	‡	N/A	N/A	N/A	N/A	N/A
Fiber Content of Foods	‡	N/A	N/A	N/A	N/A	N/A
Vitamin C Content of Foods	‡	N/A	N/A	N/A	N/A	N/A

Table of chartbook reports: A classification by type of data collection system and by selected population characteristics—Con.

Title	*Category(ies)*	*Race and ethnicity*[1]	*Sex*[2]	*Age(s)*[3]	*Educational level*[4]	*Income level*[5]
Selenium Content of Foods	‡	N/A	N/A	N/A	N/A	N/A
Carotenoid Content of Foods	‡	N/A	N/A	N/A	N/A	N/A
Per Capita Food Supply Trends	†	–	–	AA	–	–
Per Capita Use of Selected Foods and Sweeteners	†	–	–	AA	–	–
Per Capita Use of Meats, Poultry, Fish, and Eggs	†	–	–	AA	–	–
Per Capita Calcium in the Food Supply	‡	–	–	AA	–	–
Sources of Calcium in the Food Supply	‡	N/A	N/A	N/A	N/A	N/A

NOTE: Desh denotes not specified; data mey have been collected for this population characteristic but were not reported here. N/A denotes not applicable.

[1]Rece/ethnicity: AR = ell races
AI/AN = American Indian or Alaska Native
A/PI = Asian or Pecific Islander
C = Cuben
H = Hispanic
MA = Mexican American
NHB = Non-Hispanic Black
NHW = Non-Hispanic White
PR = Puerto Rican

[2]Sex: M = Mele
F = Femele

[3]Age (in yeers): AA = ell eges

[4]Educational level: < 12 = less than 12 years of education
12 = 12 yeers of education (high school equivalency)
> 12 = more than 12 years of education

[5]Income level: L = low
M = medium
H = high
Q = reported es income quintiles.

Chartbook Reports

Section I.

Nutritional Status and Related Health Measurements

Nutrition-Related Health Issues

Body Mass Index Among Adults

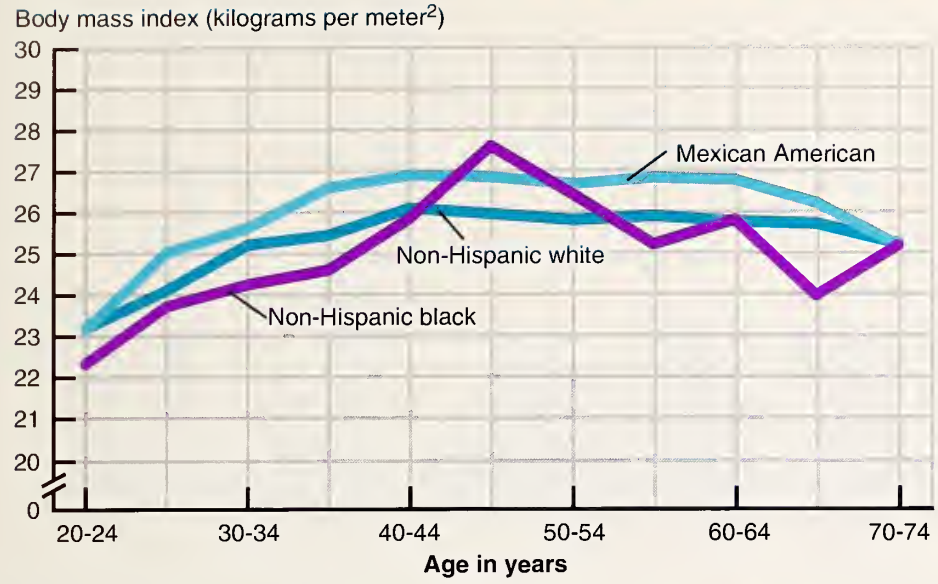

Figure 1. Median body mass index for males 20–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80 †, and Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

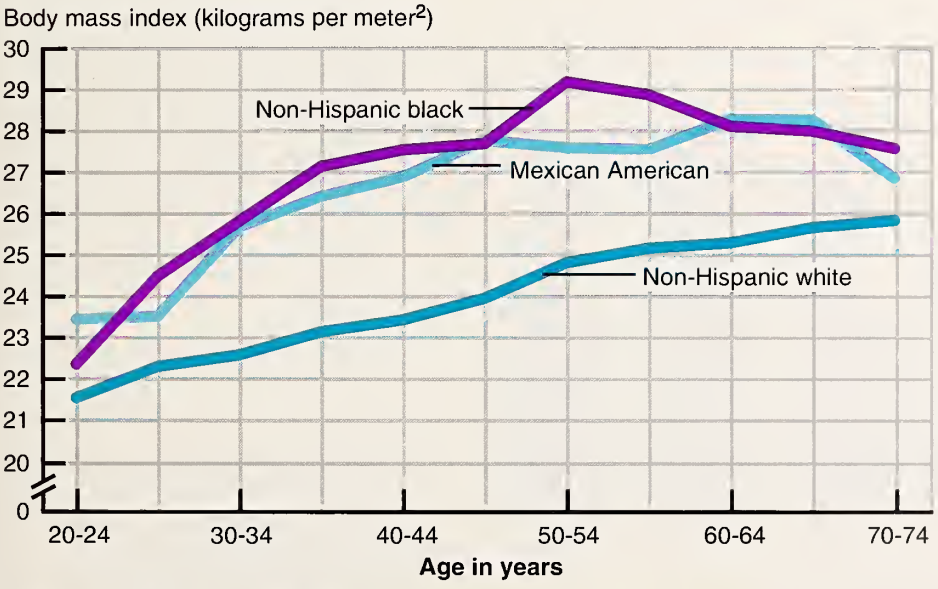

Figure 2. Median body mass index for females 20–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80 †, and Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

The body mass index (BMI), measured in kilograms per meter^2, is an index used to relate weight to stature. It is often referred to as an obesity index, although technically it is not a measure of total body adiposity. In 1985 the Consensus Development Conference Panel on the Health Implications of Obesity, sponsored by the National Institutes of Health, concluded that a BMI greater than 27.8 for males or 27.3 for females represents a weight status 20 percent or more above desirable (1).

- Data from the 1976–80 National Health and Nutrition Examination Survey (NHANES II) showed that approximately 34 million Americans had a BMI above the panel's cut-offs for desirable weight status.
- Comparisons of BMI were made for non-Hispanic white, non-Hispanic black, and Mexican-American males and females using data from the 1982–84 Hispanic Health and Nutrition Examination Survey and NHANES II.
- Figure 1 shows that the median BMI for males continued to increase approximately until mid-adulthood and gradually decreased in later ages.
- For females, the BMI continued to rise into later adult years for all three racial and ethnic groups (figure 2). The values for the non-Hispanic black and Mexican-American women tended to change similarly, although at a higher level, when compared with the median BMI for non-Hispanic white females (2).

See data tables for detailed notes.

References

1. National Institutes of Health Consensus Development Panel on the Health Implications of Obesity. Health implications of obesity. Ann Intern Med 103(6 pt 2):1073–7. 1985
2. Kuczmarski RJ. Prevalence of overweight and weight gain in the United States. Am J Clin Nutr 55(2):495S–502S. 1992.

Percent of Overweight Among Adults

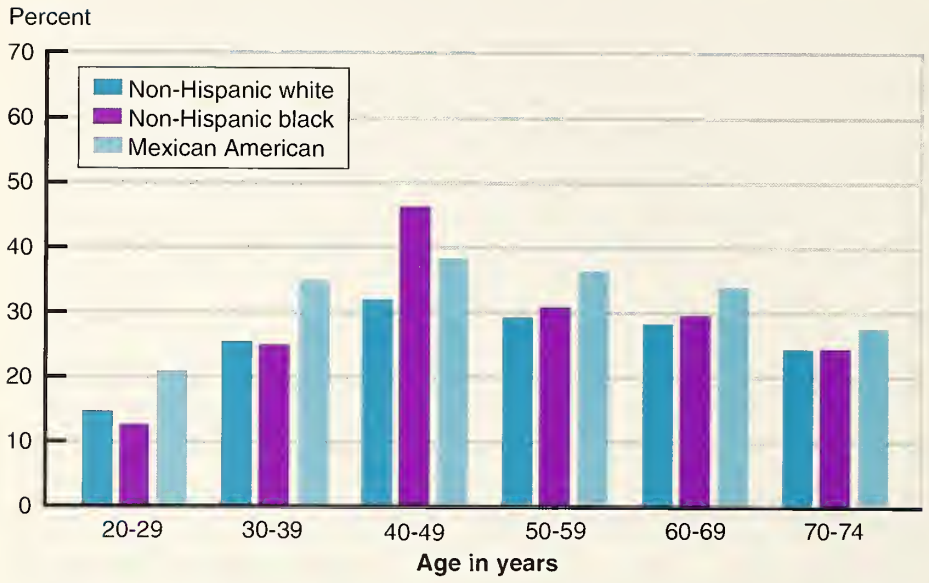

Figure 3. Percent of overweight males 20–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80 †, and Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

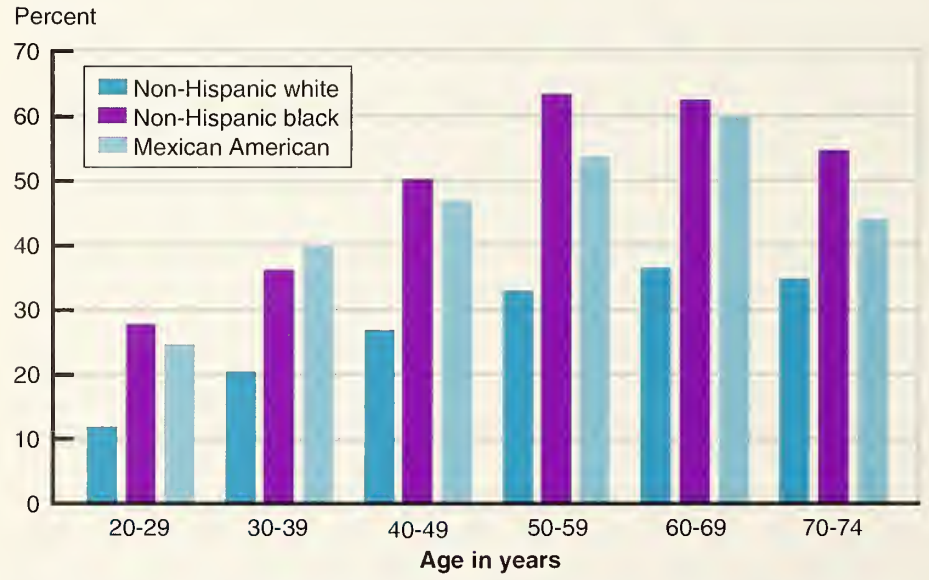

Figure 4. Percent of overweight females 20–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80 †, and Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

Overweight is a condition of major public health concern in the United States. According to *The Surgeon General's Report on Nutrition and Health*, overweight is a risk factor for diabetes mellitus, hypertension and stroke, coronary heart disease, some types of cancer, and gallbladder disease. Overweight occurs across all subgroups of the population, but is particularly prevalent in the predominant ethnic minorities.

- Comparisons of overweight (based on body mass index, an index that relates weight to stature), were made for non-Hispanic white, non-Hispanic black, and Mexican-American males and females using data from the 1982–84 Hispanic Health and Nutrition Examination Survey and the 1976–80 National Health and Nutrition Examination Survey.
- Among males, the percent of overweight appeared to peak in the age group of 45–54 years of age (figure 3). The percent of overweight was generally higher among Mexican-American males than among non-Hispanic white males.
- The percent of overweight was highest in non-Hispanic black females 50–69 years of age (figure 4). Overweight was more predominant in Mexican-American females than in non-Hispanic white females (1,2).

See data tables for detailed notes.

References

1. Kuczmarski RJ. Prevalence of overweight and weight gain in the United States. Am J Clin Nutr 55(2):495S–502S. 1992.
2. Life Sciences Research Office, Federation of American Societies for Experimental Biology. Nutrition monitoring in the United States—An update report on nutrition monitoring. Hyattsville, Maryland: Public Health Service. 1989.

Incidence of Major Weight Gain in Adults

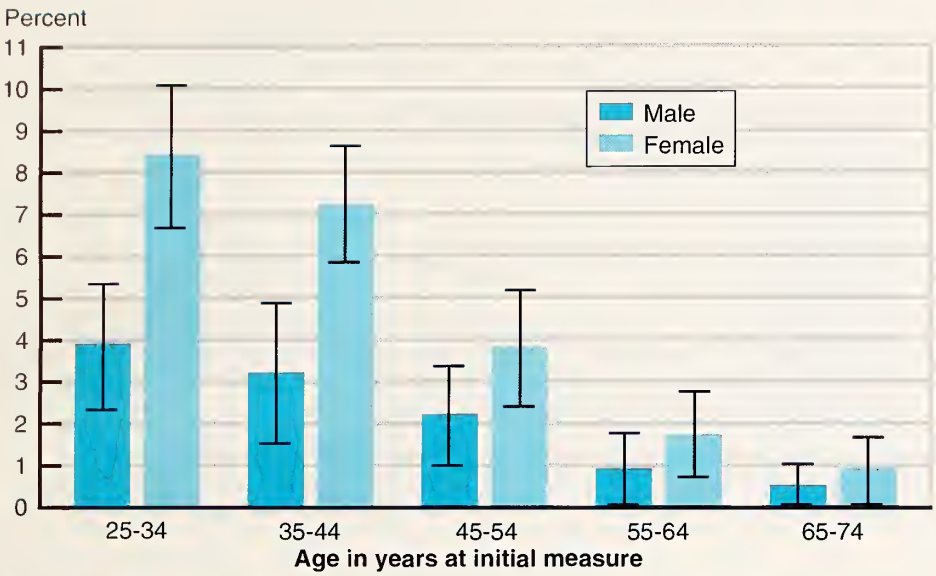

Figure 5. Ten-year incidence of major weight gain among adults 25–74 years of age, 1971–75 and 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey (NHANES I), 1971–75 †, and Office of Analysis and Epidemiology, NHANES I Epidemiologic Followup Study, 1982–84 †.

To estimate the 10-year incidence of major weight gain in U.S. adults, 3,727 males and 6,135 females were weighed an average of 10 years apart. Pregnant women were excluded from the analysis. A major weight gain was defined as an increase in body mass index (BMI) of 5 or more kilograms per meter^2. For an adult of average height this increase is equivalent to a weight gain of approximately 30 or more pounds.

- The incidence of major weight gain was highest for both men and women in the youngest age group (25–34 years of age) (figure 5). Among adults 25–34 years of age, 4 percent of men and 8 percent of women experienced a major weight gain. The risk of major weight gain decreased with increasing age; less than 1 percent of adults 65–74 years of age exhibited a major weight gain.
- For all age groups, the risk of a major weight gain over the 10-year period was approximately twice as high for women as for men (1).

Reference

1. Williamson DF, Kahn HS, Remington PL, et al. The 10-year incidence of overweight and major weight gain in U.S. adults. Arch Intern Med 150(3):665–72. 1990.

Weight Loss Practices of Overweight Adults

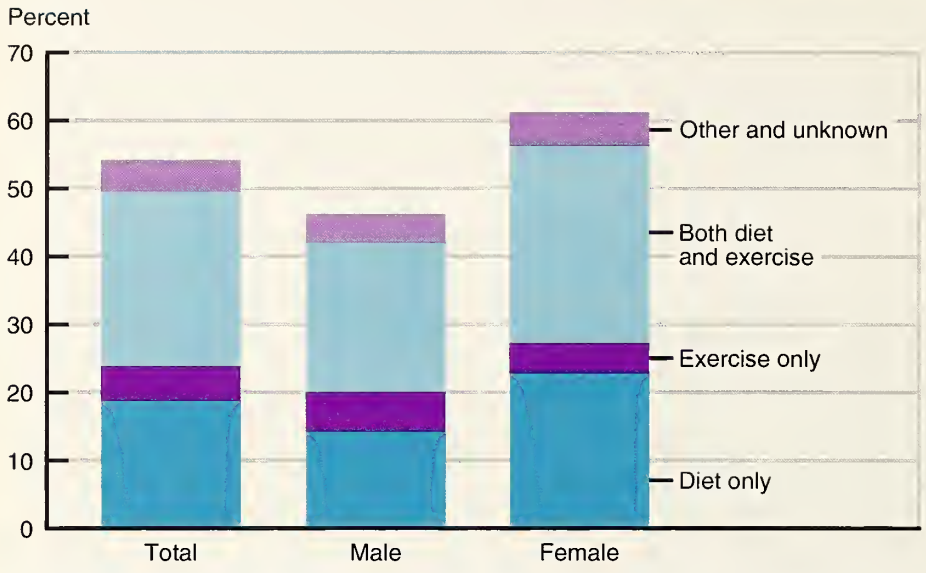

Figure 6. Percent of overweight adults who are trying to lose weight, according to method of weight loss and sex, 1990

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, National Health Interview Survey †.

According to *The Surgeon General's Report on Nutrition and Health*, overweight is a risk factor for diabetes mellitus, hypertension and stroke, coronary heart disease, some types of cancer, and gallbladder disease. It also may be a factor in osteoarthritis of the weight-bearing joints. About one-quarter of American adults, both male and female, are overweight.

The data presented here were derived from self-reported weight and height among persons 18 years of age and over in the 1990 National Health Interview Survey. Overweight was based on body mass index, an index that relates weight to stature. Because self-reported weight and height were used to determine overweight, some men and women were likely to be incorrectly categorized due to reporting errors.

- Although the percent of men and women who were overweight was about the same (approximately 26 percent), slightly more than half of these men and women reported trying to lose weight in 1990 (figure 6).
- Among overweight men and women trying to lose weight by diet only, exercise only , or both diet and exercise, over half of them used both diet and exercise. More women than men used diet only to lose weight, while more men than women used exercise only.

See data tables for detailed notes.

Weight Loss Practices by Body Mass Index

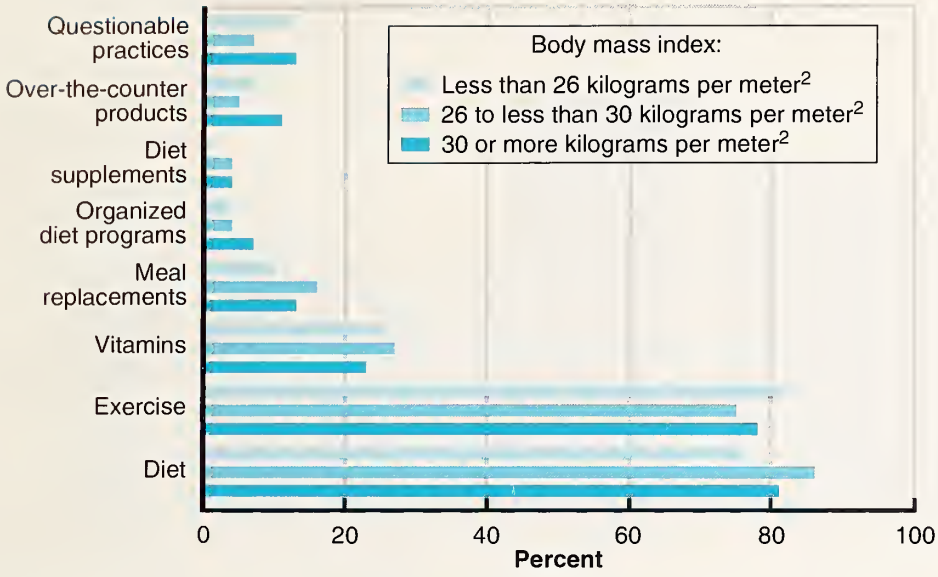

Figure 7. Percent of specific weight loss practices of adult males, by body mass index, 1991

SOURCE: Food and Drug Administration, Consumer Studies Branch, Weight Loss Practices Survey †.

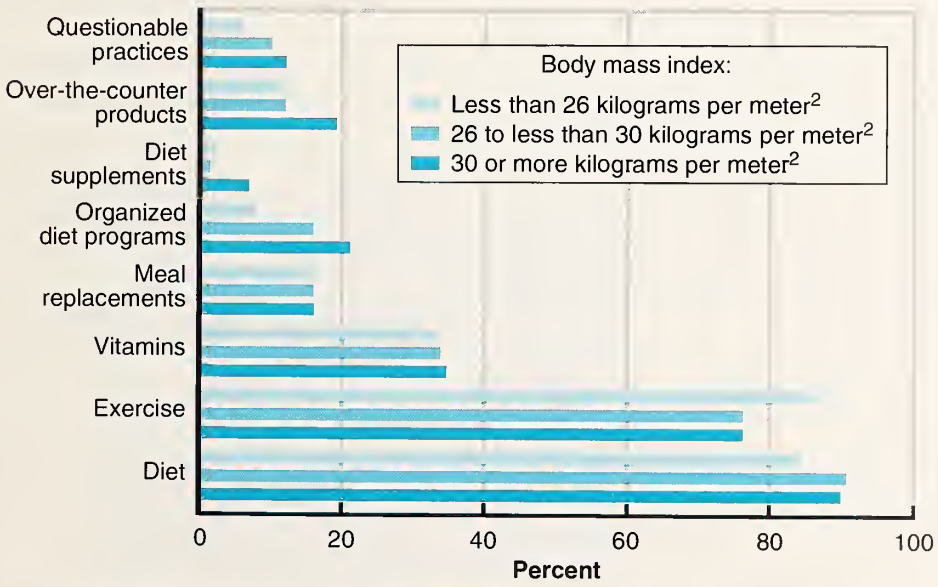

Figure 8. Percent of specific weight loss practices of adult females, by body mass index, 1991

SOURCE: Food and Drug Administration, Consumer Studies Branch, Weight Loss Practices Survey †.

The 1991 Weight Loss Practices Survey collected data on weight loss practices from a sample of adults 18 years of age and over who reported they were trying to lose weight at the time of the survey. This telephone survey included an extensive inventory of possible practices that could be part of a voluntary weight loss plan. For the survey, weight loss practices were assigned to the following categories: **questionable**, which included fasting, taking laxatives, using devices such as body wraps, vomiting, and surgery; **meal replacements**, consisting of meal-replacement products; **diet supplements**, which consisted of any other diet supplements; and **over-the-counter products**, which included appetite suppressants and diuretics. The various weight loss practices were examined as a function of body mass index (BMI) (kilograms per meter^2) and gender.

- The most common weight loss practices for both males and females were dieting and exercise (figures 7 and 8). Exercise declined with increasing BMI for females, but not for males.
- Among men and women, taking vitamins was the next most common practice, and it did not vary with BMI.
- For both men and women, participating in organized programs and using diet supplements tended to increase with increasing BMI. In addition, using over-the-counter products and engaging in questionable practices tended to increase as BMI increased among females (1).

See data tables for detailed notes.

Reference

1. Levy AS, Heaton AW. Weight control practices of U.S. adults trying to lose weight. Annals of Internal Medicine Special Supplement. In press.

Percent Body Fat of Male Soldiers

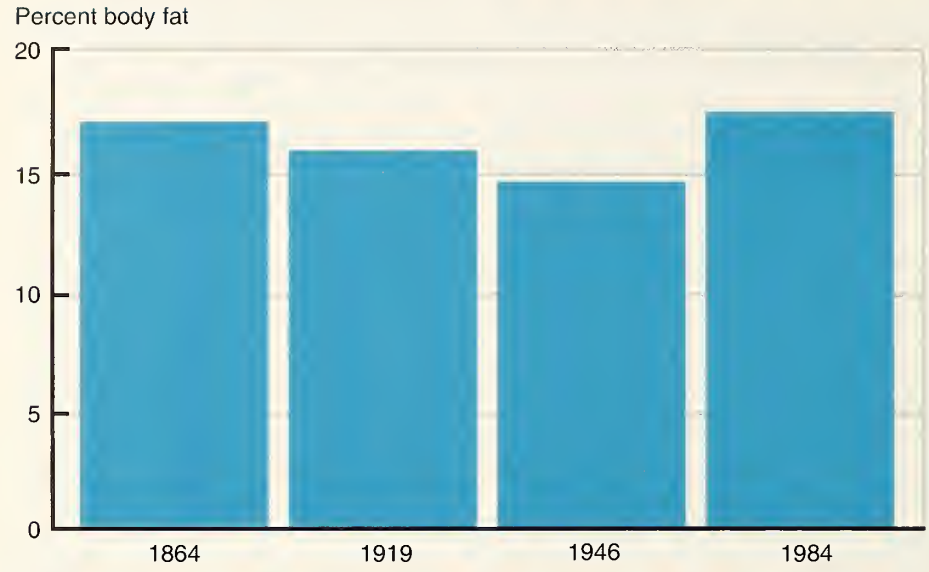

Figure 9. Percent body fat of male soldiers for selected years, 1864–1984

SOURCE: U.S. Department of Defense, U.S. Army Research Institute of Environmental Medicine, Military Nutrition Division ¶.

Body fat standards are part of the Army's emphasis on fitness, and contribute to a reduced incidence of obesity in the armed forces. According to *The Surgeon General's Report on Nutrition and Health*, obesity is a risk factor for heart disease, diabetes, hypertension, and some types of cancer. *Healthy People 2000* objectives include reducing the prevalence of obesity.

- Anthropometric statistical reports of male soldiers from 1864, 1919, and 1946 were reviewed to obtain height, weight, age, and girth (neck, chest, and waist) measures (1). These measures were used to calculate estimates of relative percent body fat using the Army circumference method (2). Body fat estimates derived using the Army circumference method were also obtained from data from a 1984 U.S. Army Research Institute of Environmental Medicine body composition study.
- Percent body fat of young male soldiers remained within a narrow range (14–17 percent) over the time period covered (figure 9). Current Army standards encourage all males to have a percent body fat of no more than 20 percent. The Army's body fat standards also provide upper limits: the upper limit for male soldiers 21–27 years of age is 22 percent body fat; for soldiers 28–39 years of age it is 24 percent body fat; and for soldiers 40 years of age and over it is 26 percent body fat.

See data tables for detailed notes.

References

1. Friedl K. Body composition and military performance: Origins of the Army standards. In: Committee on Military Nutrition Research, Food and Nutrition Board, Institute of Medicine, Body Composition and Physical Performance. Washington: National Academy Press. 1992.
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Adults Needing Lipoprotein Analysis and Intervention

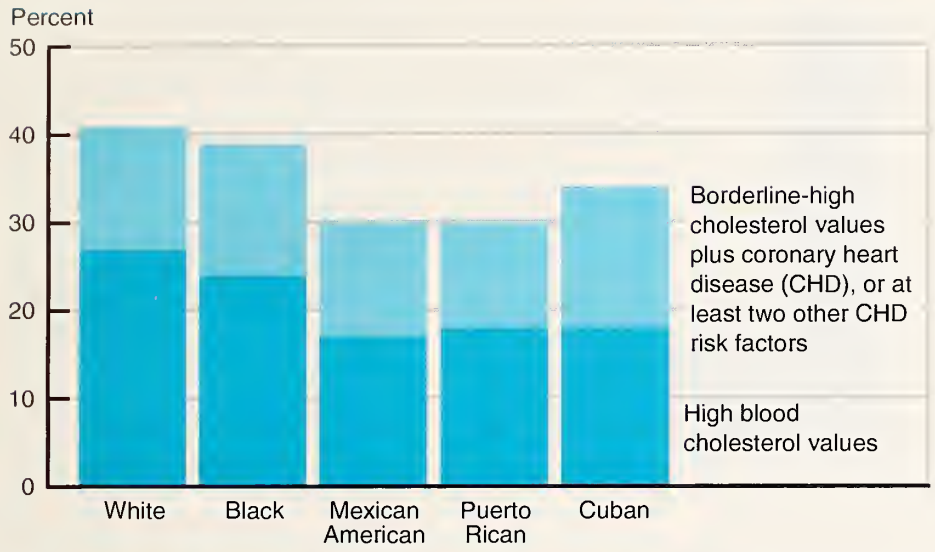

Figure 10. Percent of adults 20–74 years of age needing lipoprotein analysis, by race and ethnicity, 1976–80 and 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80 †, and Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

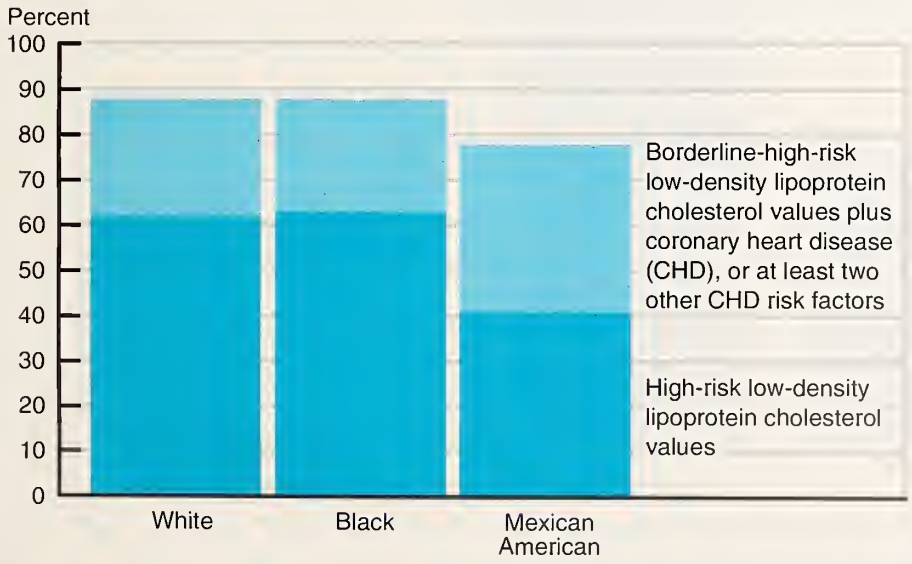

Figure 11. Percent of adults 20–74 years of age needing lipoprotein analysis who would be candidates for intervention, by race and ethnicity, 1976–80 and 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80 †, and Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

The National Cholesterol Education Program's 1987 Guidelines for Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults were applied to data from the 1976–80 National Health and Nutrition Examination Survey (NHANES II) and the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES) to estimate the proportion of adults needing lipoprotein analysis and treatment (1).

- About 40 percent of white and black persons from NHANES II and approximately one-third of Mexican Americans, Puerto Ricans, and Cubans from HHANES had high serum cholesterol values or had borderline-high values plus coronary heart disease (CHD) or two other CHD risk factors and needed lipoprotein analysis (figure 10).
- Among those needing lipoprotein analysis, nearly 90 percent of both white and black persons and nearly 80 percent of Mexican Americans had high-risk low-density lipoprotein cholesterol (LDL-C) values or borderline-high-risk LDL-C values plus CHD or two other CHD risk factors (figure 11), and were candidates for medical advice and intervention.
- Overall, 37 percent of white persons, 35 percent of black persons, and 23 percent of Mexican Americans 20–74 years of age needed medical advice and intervention for high blood cholesterol (2,3).

See data tables for detailed notes.

References

1. National Cholesterol Education Program. Report of the expert panel on population strategies for blood cholesterol reduction. Bethesda, Maryland: National Institutes of Health. 1990.
2. Sempos C, Fulwood R, Haines C, et al. The prevalence of high blood cholesterol levels among adults in the United States. JAMA 262(1):45–52. 1989.
3. Carroll M, Sempos C, Briefel R, et al. Prevalence of high blood cholesterol in Hispanics. Poster session presented at Minority Health Issues for an Emerging Majority, June 26–27. Washington. 1990.

Nutrients and Cataract Prevention

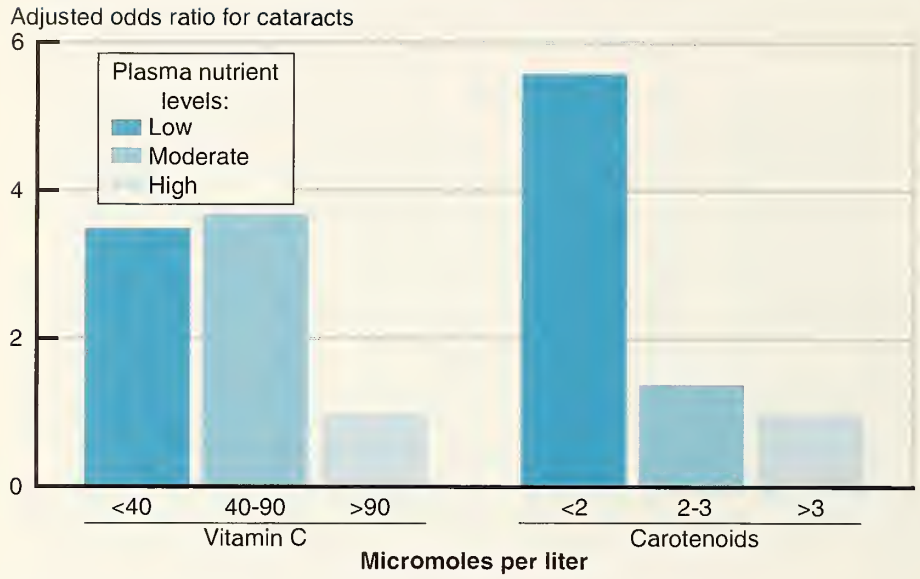

Figure 12. Plasma nutrient levels and risk of developing senile cataracts

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Human Nutrition Research Center on Aging at Tufts University, Brigham and Women's Hospital, and the Center for Clinical Cataract Research ‡.

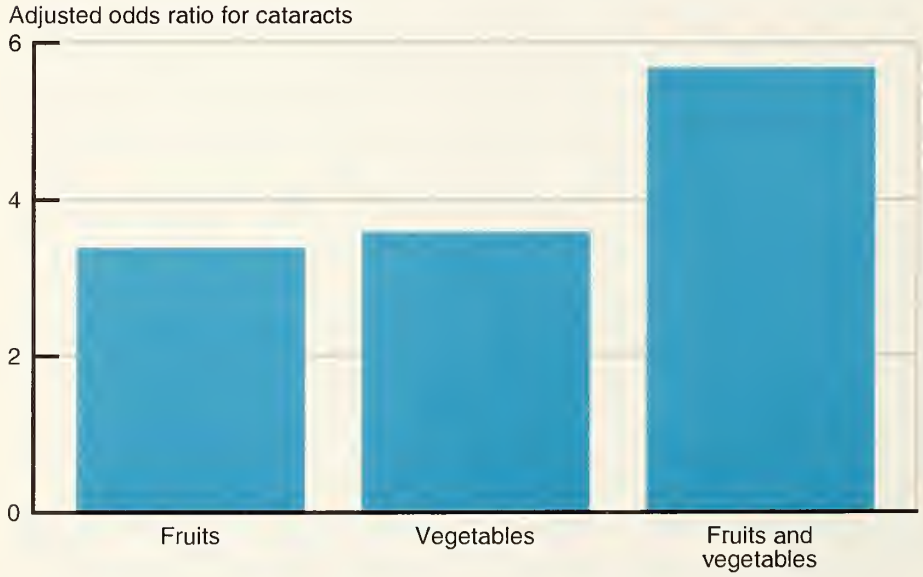

Figure 13. Low fruit and vegetable intake and risk of developing senile cataracts

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Human Nutrition Research Center on Aging at Tufts University, Brigham and Women's Hospital, and the Center for Clinical Cataract Research ‡.

A case-control study conducted between 1981 and 1985 examined the relationship between antioxidant nutrient status and risk of developing senile cataracts. Relative risks of cataracts were estimated by odds ratios after adjusting for age, gender, race, and diabetes.

- Odds ratios were estimated for people with low and moderate nutrient status compared with those with high nutrient status (figure 12). People with low and moderate plasma vitamin C levels had an increased risk of cataracts compared with people with high plasma vitamin C levels. People with low plasma carotenoid levels were more likely to have cataracts compared with people with high plasma carotenoid levels.
- Odds ratios were calculated for fruit or vegetable intakes below a cut-off for low intake compared with those above the cut-off (figure 13). There was an increased risk of cataracts for persons who consumed an average of less than one and one-half servings of fruits, less than two servings of vegetables, or less than three and one-half servings of fruits and vegetables per day (1).

See data tables for detailed notes.

Reference

1. Jacques PF, Chylack LT, Jr. Epidemiologic evidence of a role for the antioxidant vitamins and carotenoids in cataract prevention. Am J Clin Nutr 53(1):352S–5S. 1991.

Populations at Increased Nutritional Risk

Maternal Weight Gain

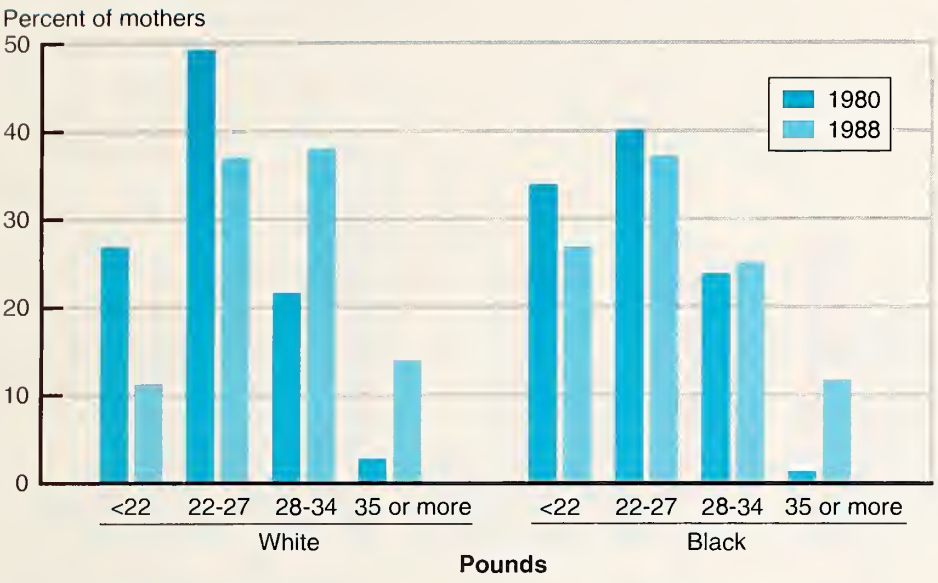

Figure 14. Weight gain advice for married mothers, by race, 1980 and 1988

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Natality Survey †, and National Maternal and Infant Health Survey †.

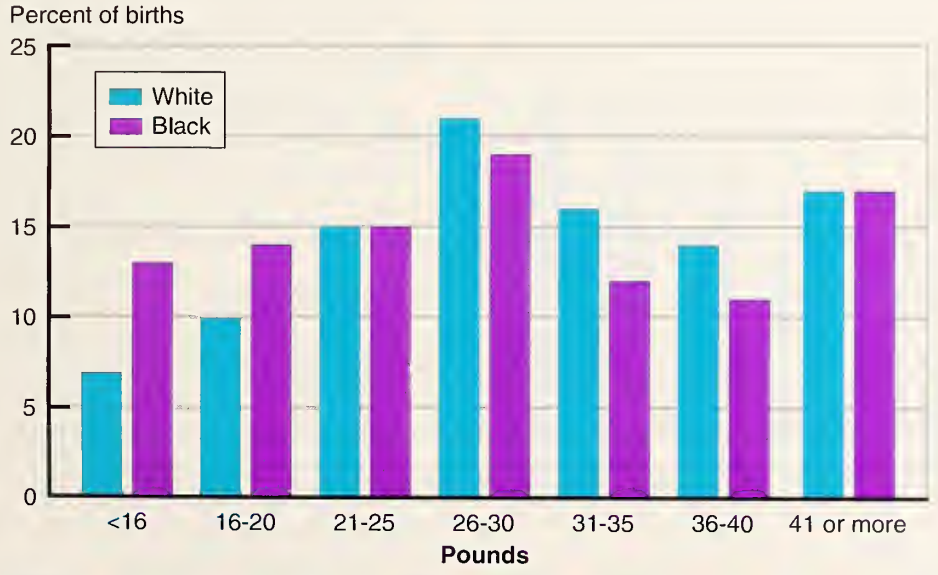

Figure 15. Percent of live births of 40 weeks gestation or longer, by maternal weight gain and race of mother, 1989

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System §.

In 1990, in recognition of the importance of an adequate weight gain for a favorable birth outcome, the Institute of Medicine recommended liberalizing guidelines for maternal weight gain during pregnancy to 25 to 35 pounds for women of normal prepregnancy body mass index (BMI) (1). Medical guidelines before 1990 recommended a weight gain during pregnancy of 22 to 27 pounds regardless of BMI (1).

- In the 1988 National Maternal and Infant Health Survey, the medical advice on weight gain that married white women reported receiving during pregnancy improved compared with the advice married white women reported receiving in the 1980 National Natality Survey. Married black women were nearly three times as likely in 1988 as married white women to report being advised to gain less than the minimum guideline (figure 14) (2).
- Data on actual weight gain taken from 1989 U.S. certificates of live birth show that more black mothers than white mothers with gestations of 40 weeks or longer gained 20 pounds or less. Fewer black mothers than white mothers gained 26 to 35 pounds (figure 15) (3).

See data tables for detailed notes.

References

1. Institute of Medicine. Subcommittee on Nutritional Status and Weight Gain During Pregnancy. Nutrition during pregnancy: part I, weight gain. Washington: National Academy Press. 1990.
2. Taffel SM, Keppel KG, Jones GK. Medical advice on maternal weight gain and actual weight gain: Results from the 1988 National Maternal and Infant Health Survey. In: Keen CL, Bendich A, Willhite CC, eds. Maternal nutrition and pregnancy outcome Annals of the New York Academy of Sciences, vol 678. New York: New York Academy of Sciences. 1993.
3. National Center for Health Statistics Advance report, final natality statistics, 1989. Monthly vital statistics report, Vol 40 no 8, suppl. Hyattsville, Maryland: Public Health Service. 1991.

Maternal Anemia During Pregnancy

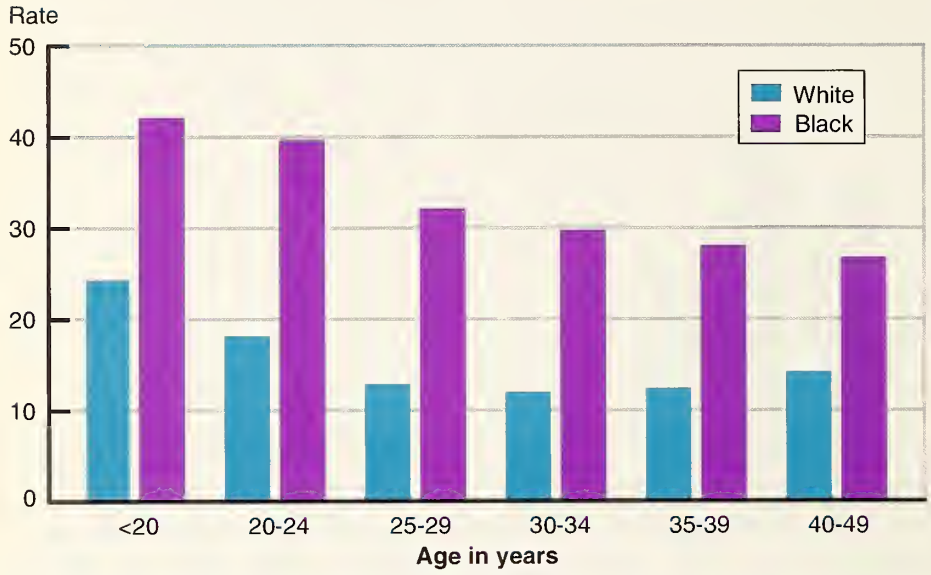

Figure 16. Anemia rates during pregnancy per 1,000 live births, by maternal age and race, 1989

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Statistics System §.

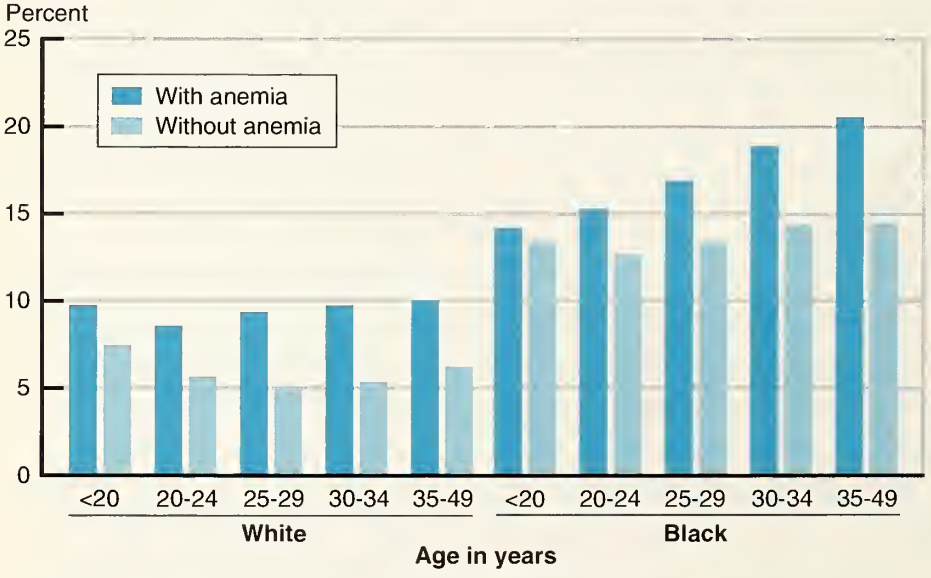

Figure 17. Percent of live births that were low birth weight for women with or without anemia, by maternal age and race, 1989

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Statistics System §.

In 1989, 47 States and the District of Columbia reported the occurrence of selected medical risk factors in pregnancy on their certificates of live birth. Of these factors, anemia had the third highest rate in 1989, 19 per 1,000 live births.

The most common cause of anemia in pregnant women is iron deficiency. Although a relationship between iron deficiency during pregnancy and the likelihood that the infant will also be iron deficient has not been established, some research suggests a link to the risk of low birth weight [less than 2,500 grams (5.5 pounds)] (1).

- In 1989 the overall anemia rate during pregnancy was 36 per 1,000 live births for black women and 15 for white women. Anemia rates were highest for both white and black women under 20 years of age (figure 16). The lowest rate for black women was among those 40–49 years of age, while for white women it was among those 30–34 years of age. Anemia rates decreased with age among black women, whereas for white women the rates decreased up to 30–34 years of age and then increased slightly with age.
- Distinct differences can be seen for all ages and for both black and white women when comparing the percent of live births that were low birth weight for women diagnosed with or without anemia during pregnancy (figure 17). The percent of live births that were low birth weight for white women diagnosed with anemia during pregnancy was 9 percent, compared with 6 percent for those without anemia; for black women it was 16 percent compared with 13 percent.

See data tables for detailed notes.

Reference

1. Institute of Medicine. Subcommittee on Nutritional Status and Weight Gain During Pregnancy. Nutrition during pregnancy: part I, weight gain, part II, nutrient supplements. Washington: National Academy Press. 1990.

Anemia Among Low-Income Women During Pregnancy

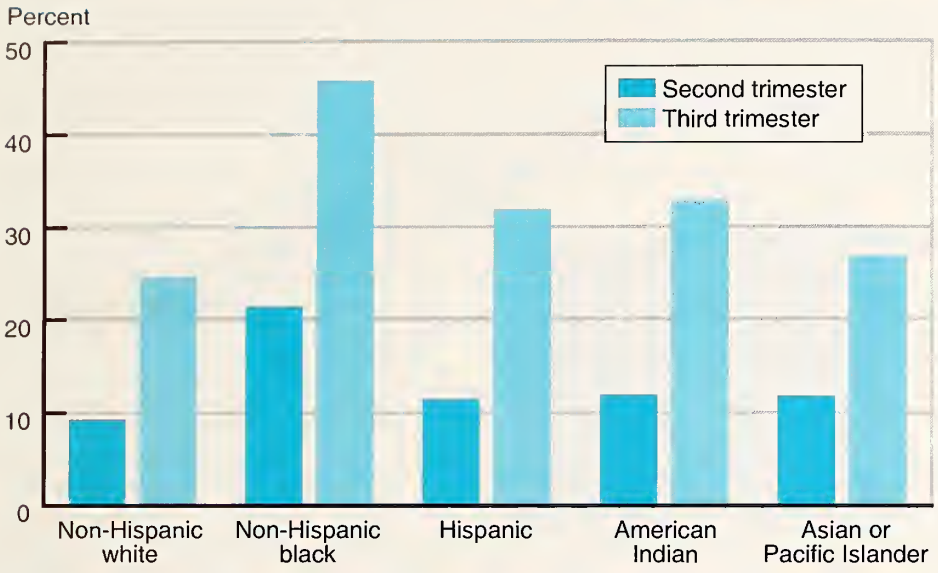

Figure 18. Percent of low-income women in the second and third trimesters of pregnancy with anemia, by race and ethnicity, 1990

SOURCE: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Pregnancy Nutrition Surveillance System §.

Evidence indicates that iron deficiency is associated with greater risk for adverse pregnancy outcomes, including preterm births (1). Using data from the 1990 Pregnancy Nutrition Surveillance System (PNSS), the prevalence of anemia for low-income pregnant women was determined by trimester. Anemia during pregnancy was based on low hemoglobin or hematocrit values, using the Centers for Disease Control's cut-offs for anemia, which are month-specific and trimester-specific (2).

- The PNSS data showed a high prevalence of anemia among low-income pregnant women, particularly during the second and third trimesters of pregnancy (figure 18).
- The high prevalence of anemia during the third trimester reflects the progressive decline in iron nutrition status throughout the pregnancy of low-income women (3).
- The prevalence of anemia was significantly higher for non-Hispanic black women than for women in the other racial and ethnic groups examined (4).

See data tables for detailed notes.

References

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2. Centers for Disease Control. CDC criteria for anemia in children and childbearing-aged women. MMWR 38:400–4. 1989.
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4. Perry GS, Byers T, Yip R, et al. Iron nutrition does not account for the hemoglobin differences between blacks and whites. J of Nutr 122(7):1417–24 1992.

Alcohol Consumption Among Pregnant Women

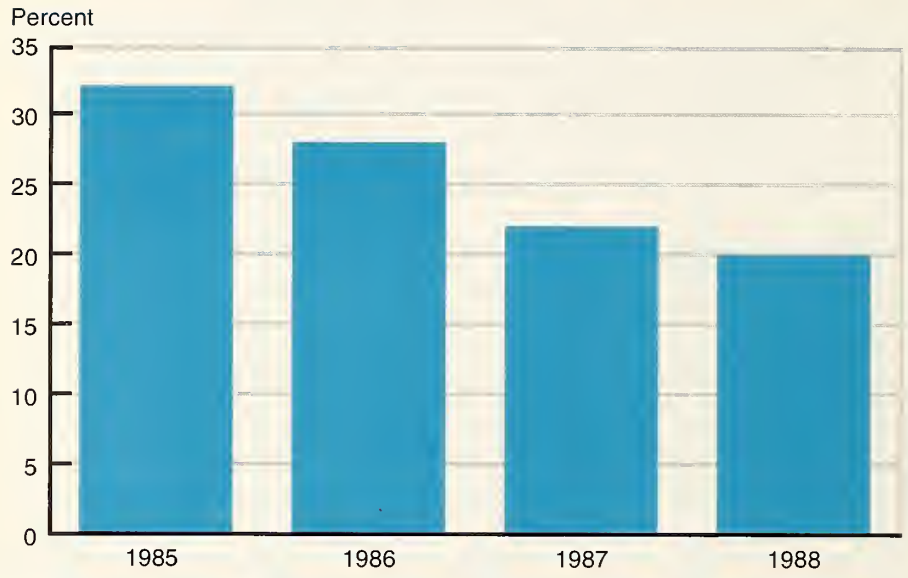

Figure 19. Alcohol consumption in the past month among pregnant women 18–45 years of age, by year of interview, 1985–88

SOURCE: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office of Surveillance and Analysis, Behavioral Risk Factor Surveillance System §.

Because alcohol use during pregnancy can be harmful to the fetus, the *Dietary Guidelines for Americans* and the Surgeon General of the United States recommend that women who are pregnant or considering pregnancy abstain from using any alcoholic beverages (1). The *Healthy People 2000* objectives set a goal to "increase abstinence from alcohol. . .by pregnant women by at least 20 percent."

Trends in alcohol consumption among pregnant women were examined using data collected from 21 States participating in the Behavioral Risk Factor Surveillance System for 4 consecutive years (1985–88) (2).

- Overall, 25 percent of pregnant women and 55 percent of nonpregnant women 18–45 years of age reported using alcohol in the previous month.
- Pregnant women who used alcohol reported consuming a median of four drinks per month; nonpregnant women who used alcohol reported nine drinks per month.
- The percent of pregnant women consuming alcohol declined steadily between 1985 and 1988 (figure 19), but the median number of drinks per month did not change for pregnant women who drank. No decline was observed among less-educated women or those under age 25.
- In 1988 alcohol use among pregnant women remained highest among smokers (37 percent) and among unmarried women (28 percent).

References

1. Food and Drug Administration. Surgeon General's advisory on alcohol and pregnancy. FDA Drug Bull 11:9–10. Washington: U.S. Department of Health and Human Services. 1981.
2. Serdula M, Williamson DF, Kendrick JS, et al. Trends in alcohol consumption by pregnant women. JAMA 265(7):876–9. 1991.

Breastfeeding Trends

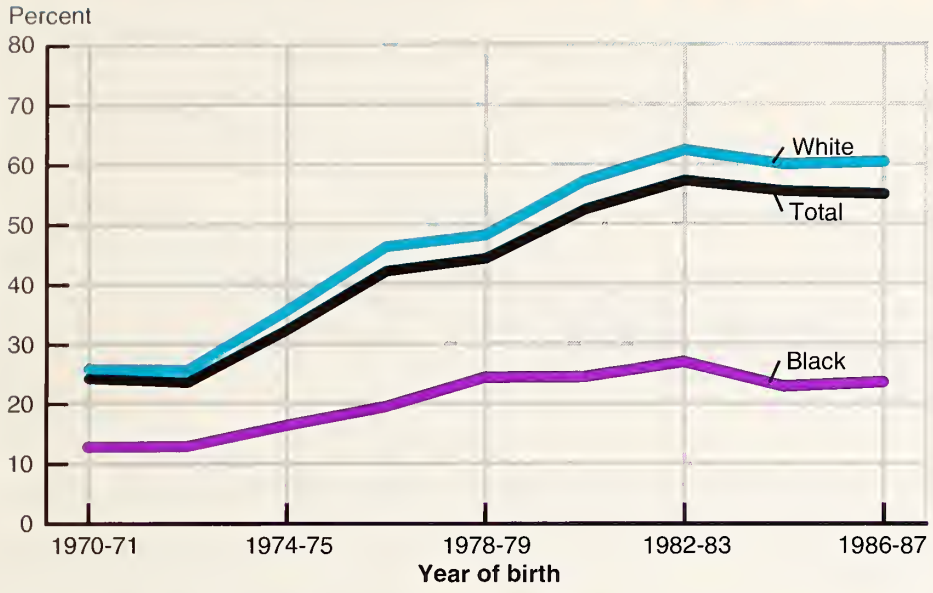

Figure 20. Percent of babies breastfed at all, by year of birth and race of mother, 1970–87

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Survey of Family Growth, 1973, 1976, 1982, and 1988 †.

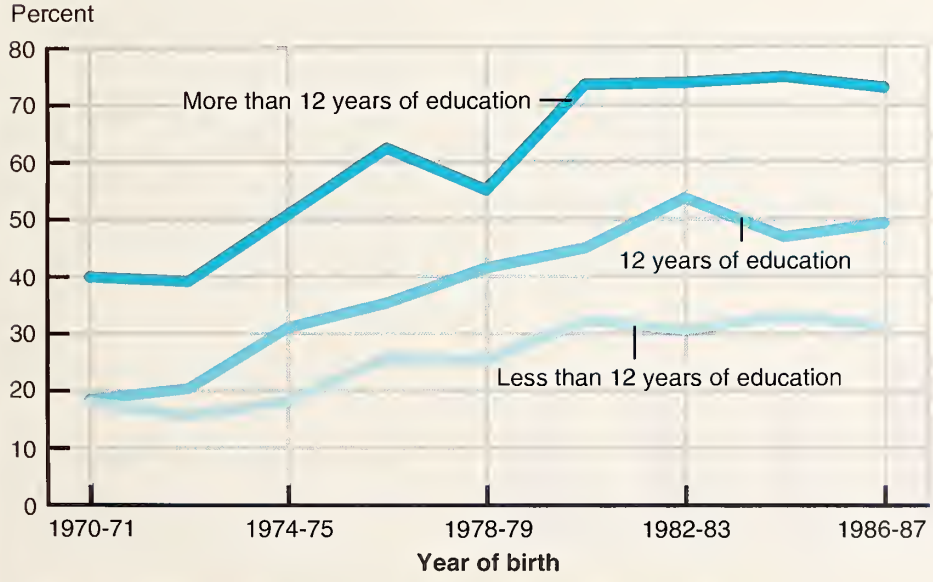

Figure 21. Percent of babies breastfed at all, by year of birth and educational level of mother, 1970–87

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Survey of Family Growth, 1973, 1976, 1982, and 1988 †.

Breastfeeding is the optimal method of infant feeding for most infants as reported in *The Surgeon General's Report on Nutrition and Health*. A mother's breastmilk gives the infant some immunity against infections, helps protect the infant from iron deficiency, is inexpensive, and rarely causes allergic reactions in the infant.

- Between 1970–71 and 1986–87 the proportion of infants who were breastfed more than doubled, peaking at 57 percent in 1982–83 (figure 20).
- Breastfeeding increased during this time among both black and white mothers, but the increase was larger for white mothers. In 1970–71 white infants were twice as likely to be breastfed at all, and by 1986–87 white infants were nearly three times as likely to be breastfed as were black infants.
- The trend was similar among women with varying levels of education, but breastfeeding increased the most among mothers with the highest educational levels (figure 21). By 1986–87, 73 percent of infants born to mothers with more than 12 years of education were breastfed compared with 49 percent of infants born to mothers with 12 years of education, and 31 percent of mothers with less than 12 years of education.
- Trends in longer breastfeeding duration (defined as breastfeeding of 3 months or longer) have paralleled overall breastfeeding patterns. Between 1970–71 and 1986–87 the percent of infants that were breastfed 3 months or more nearly tripled, with a peak of 38 percent in 1982–83. In 1986–87 the proportions of infants breastfed at least 3 months were greatest for white mothers and for mothers with more than 12 years of education.

Low Birth Weight

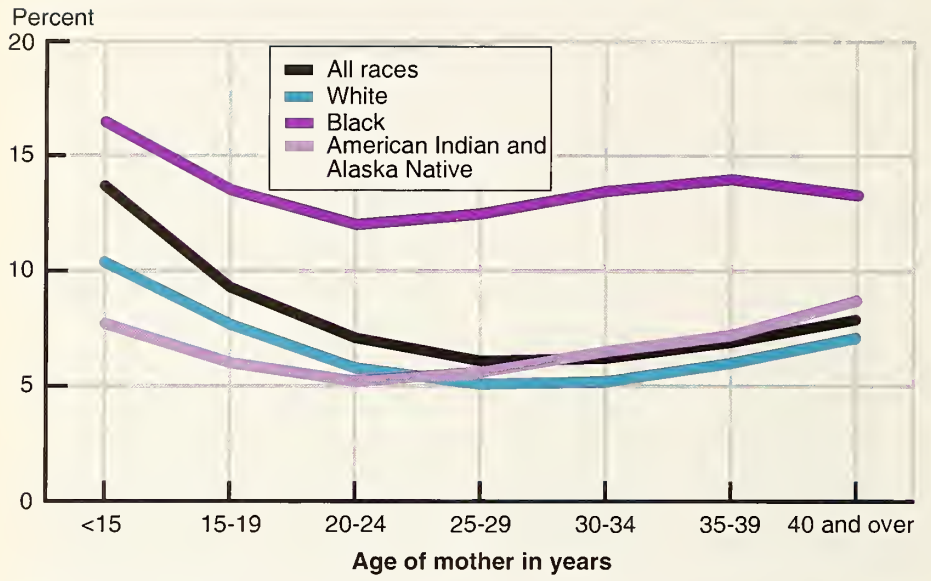

Figure 22. Low birth weight as a percent of total live births, by age of mother and race of infant, 1986–88

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System §.

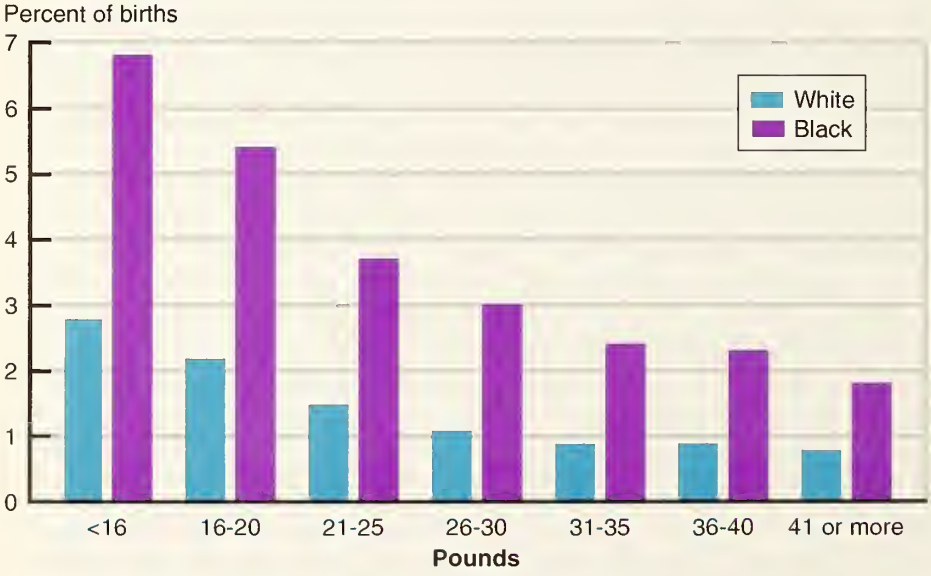

Figure 23. Low birth weight as a percent of total live births of 40 weeks gestation or longer, by maternal weight gain and race of mother, 1989

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System §.

Low birth weight is defined as a birth weight under 2,500 grams (5.5 pounds). Low-birth-weight infants are known to be at increased risk of infant mortality and morbidity. Maternal weight gain and length of gestation are positively associated with birth weight (1). The *Healthy People 2000* objectives target a low birth weight rate of no more than 5 percent.

- In 1986–88, 6 percent of reported live births among American Indians and Alaska Natives were low birth weight compared with 13 percent for the black population and 6 percent for the white population in 1987.
- For all age catergories black mothers had a higher percentage of low-birth-weight babies than white mothers or American Indian and Alaska Native mothers (figure 22) (2,3).
- Data for white and black mothers from 1989 show that with increasing maternal weight gain the proportion of babies with gestations of 40 weeks or longer who had a low birth weight declined; conversely, the proportion weighing 3,500 grams (7.7 pounds) or more increased (figure 23) (4). There was a more dramatic decrease in the proportion of black infants who were low birth weight than in white infants.

See data tables for detailed notes.

References

1. Institute of Medicine. Subcommittee on Nutritional Status and Weight Gain During Pregnancy. Nutrition during pregnancy: part I, weight gain. Washington: National Academy Press. 1990.
2. National Center for Health Statistics. Advance report, final natality statistics, 1987. Monthly vital statistics report; vol 38 no 3, suppl. Hyattsville, Maryland: Public Health Service. 1989.
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Infant Mortality Rates

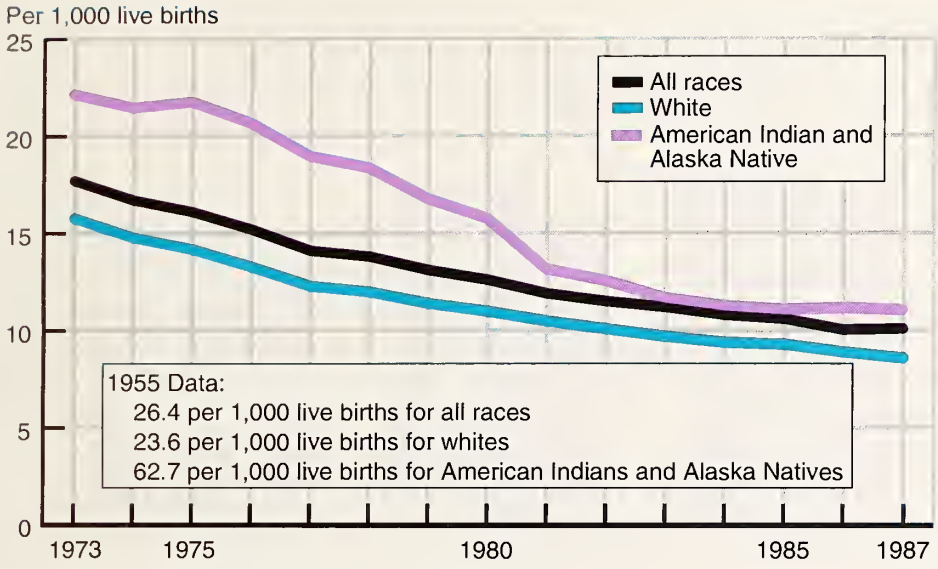

Figure 24. Infant mortality rates, by race, 1955 and 1973–87

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System §.

Since 1955 the U.S. Public Health Service, through its Indian Health Service (IHS) component, has had the responsibility to provide comprehensive health services to American Indian and Alaska Native populations in order to elevate their health status to the highest possible level. Infant mortality rates for American Indians and Alaska Natives have improved significantly since the establishment of the IHS. The *Healthy People 2000* objectives target an infant mortality rate for American Indians and Alaska Natives of no more than 8.5 per 1,000 live births.

- Reservation State data on infant mortality rates are shown for 1955, the year in which the IHS was established. Data for the specific counties in IHS service areas first became available in 1972. Although data for these two geographic boundary systems are not directly comparable, they show infant mortality trends since the IHS was established.
- The infant mortality rate for American Indians and Alaska Natives dropped from 63 infant deaths per 1,000 live births in 1955 to 11 in 1987–88, a decrease of 83 percent (figure 24). Infant mortality rates for all races and for whites in 1987 were 10 and 9, respectively (1,2).

See data tables for detailed notes.

References

1. National Center for Health Statistics. Advance report, final mortality statistics, 1987. Monthly vital statistics report; vol 38 no 5, suppl. Hyattsville, Maryland: Public Health Service. 1989.
2. Indian Health Service. Trends in Indian health—1992. Rockville, Maryland: Public Health Service. 1992.

Growth Status of Children

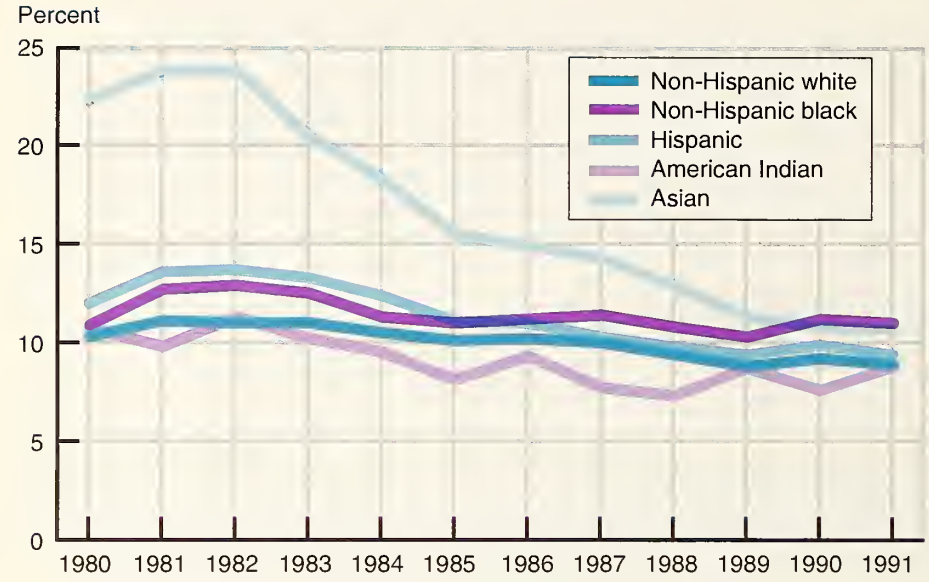

Figure 25. Percent of children 2–5 years of age with height-for-age less than the 5th percentile, by race and ethnicity, 1980–91

SOURCE: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Pediatric Nutrition Surveillance System §.

Using growth data collected from 1980 to 1991 from 12 States that consistently participated in the Pediatric Nutrition Surveillance System, the nutritional status of low-income high-risk children was determined. Height and weight status were assessed to compare the extent of stunted growth (height-for-age less than the 5th percentile) and underweight (weight-for-age less than the 5th percentile) of Asian children, predominately Southeast Asian refugees, with that of other racial and ethnic groups.

- During this 12-year period, nutritional status improved markedly among low-income Asian children, and the percent of low height-for-age and low weight-for-age decreased by more than half. Figure 25 illustrates the declining prevalence of short stature for low-income Asian children 2–5 years of age. During the same time growth status remained stable for low-income non-Hispanic white, non-Hispanic black, and Hispanic children. By 1990 the growth status of low-income Asian children was near that of children in other racial and ethnic groups (1).

  See data tables for detailed notes.

Reference

1. Yip R, Scanlon K, Trowbridge FL. Improving growth status of Asian refugee children in the United States. JAMA 267(7):937–40. 1992.

Life Expectancy

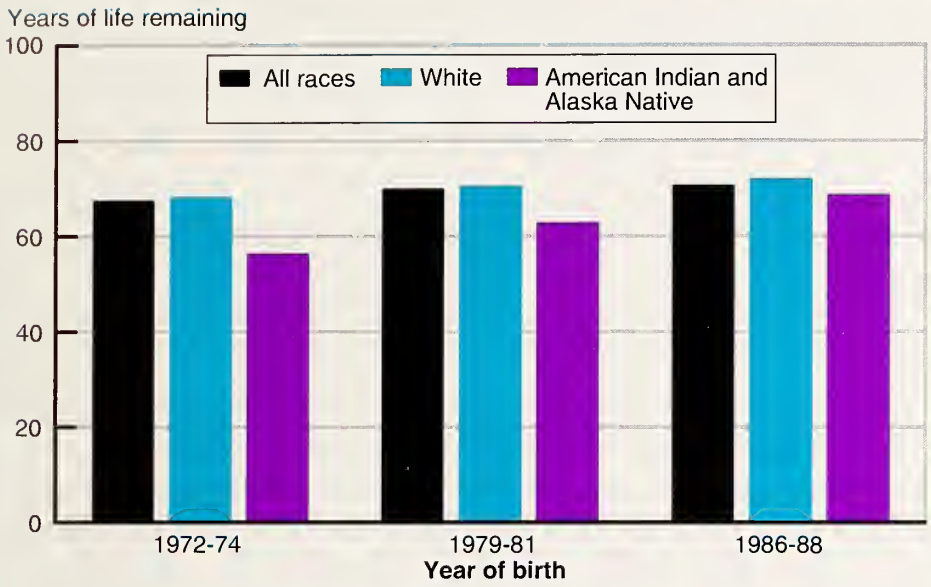

Figure 26. Life expectancy at birth for males, by race, 1972–74, 1979–81, and 1986–88

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System §.

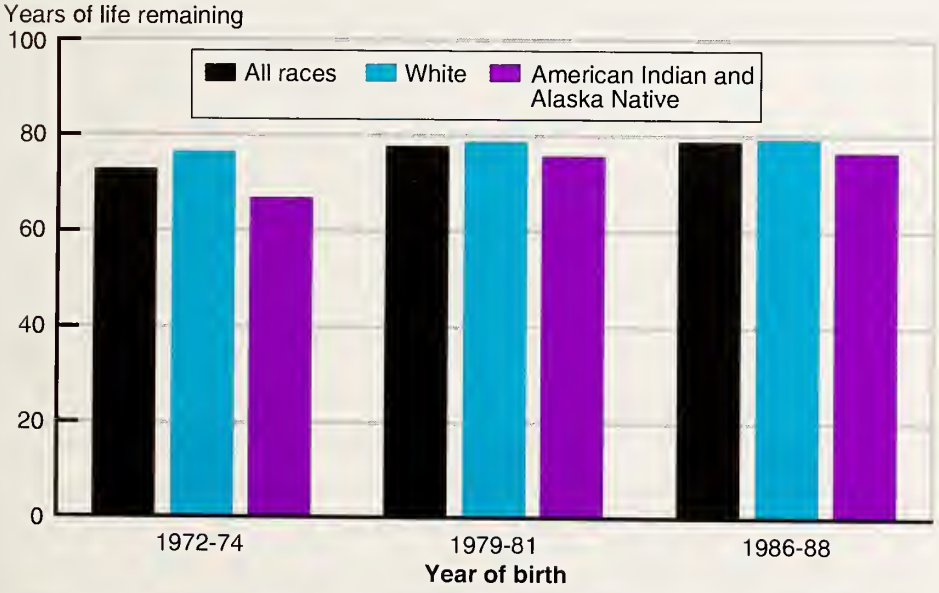

Figure 27. Life expectancy at birth for females, by race, 1972–74, 1979–81, and 1986–88

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System §.

In this century there has been a remarkable increase in the average life span in the United States (1). Life expectancy at birth for American Indians and Alaska Natives has improved over the past five decades, but still remains below that for other racial and ethnic groups in the United States.

- Life expectancy at birth for American Indians and Alaska Natives increased from 51 years in 1939–41 to 72 years in 1986–88 (data not shown). However, the latter was still 4 years less than the life expectancy of the white population in 1987.
- In 1986–88 life expectancy at birth for American Indian and Alaska Native males was 4 and 5 years less, respectively, than that for all-race males and white males in 1987 (figure 26) (2,3).
- In 1986–88 life expectancy at birth for American Indian and Alaska Native females was 2 and 3 years less, respectively, than that for all-race females and white females in 1987 (figure 27).

See data tables for detailed notes.

References

1. Brody JA, Brock DB. Epidemiologic and statistical characteristics of the United States elderly population. In: Finch RC, Schneider EL, eds. Handbook of the biology of aging. 2nd ed. New York: Van Nostrand Reinhold Company. 1985.
2. National Center for Health Statistics. Advance report, final mortality statistics, 1987. Monthly vital statistics report; vol 38 no 5, suppl. Hyattsville, Maryland: Public Health Service. 1989.
3. Indian Health Service. Trends in Indian health—1992. Rockville, Maryland: Public Health Service. 1992.

Leading Causes of Death for American Indians and Alaska Natives

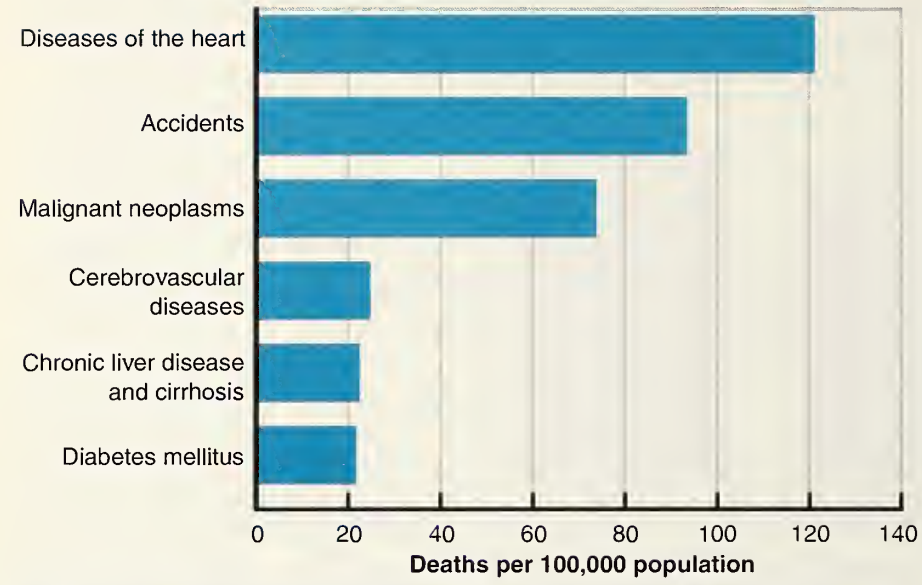

Figure 28. Mortality rates for leading causes of death for American Indians and Alaska Natives, 1986–88

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System §.

In 1986–88 nutritional factors were associated with five of the six leading causes of death for American Indians and Alaska Natives: heart disease, cancer, cerebrovascular disease, chronic liver disease and cirrhosis, and diabetes (1).

- The leading cause of death for American Indians and Alaska Natives in 1986–88 (figure 28) and for all races in 1987 in the United States was diseases of the heart.
- The second leading cause of death for American Indians and Alaska Natives was accidents. Malignant neoplasms were the second leading cause of death for all races, but the third leading cause for American Indians (1,2).

See data tables for detailed notes.

References

1. Indian Health Service. Trends in Indian health—1992. Rockville, Maryland: Public Health Service. 1992.
2. National Center for Health Statistics. Advance report, final mortality statistics, 1987. Monthly vital statistics report; vol 38 no 5, suppl. Hyattsville, Maryland: Public Health Service. 1989.

Section II.

Food and Nutrient Consumption

Food Consumption

Dietary Changes Over 12 Years

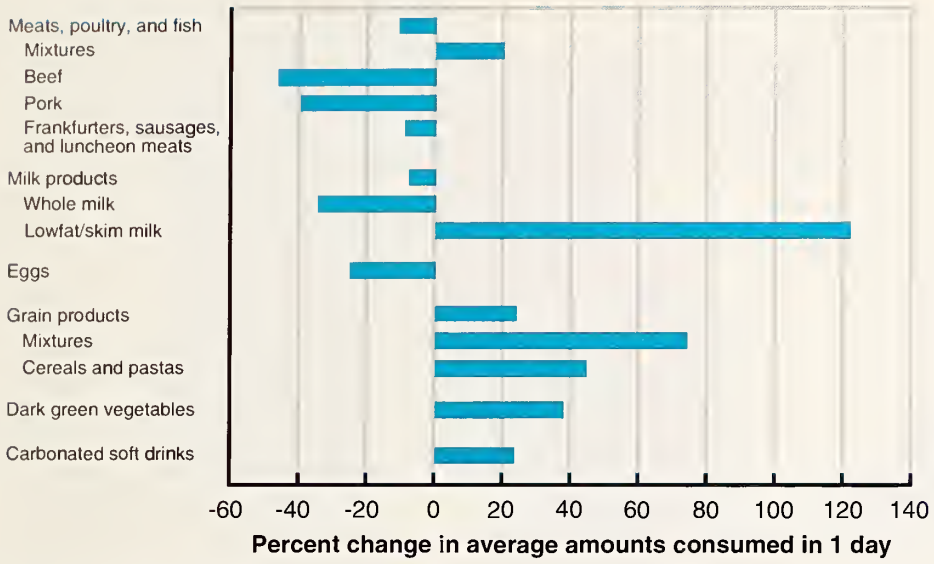

Figure 29. Dietary changes for selected foods, 1977–78 and 1989–90

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Nationwide Food Consumption Survey, 1977–78 †, and Continuing Survey of Food Intakes by Individuals, 1989–90 †.

Comparisons of results from the 1977–78 Nationwide Food Consumption Survey and the 1989–90 Continuing Survey of Food Intakes by Individuals suggest that major dietary changes occurred in the period between these two surveys (figure 29). Per capita food supply (disappearance) data support the findings reported here (1).

- Over this time period, Americans increased their consumption of lowfat and skim milk and drank less whole milk. Also over this period, Americans consumed more total grain products and cereals and pastas but less frankfurters, sausages, luncheon meats, and less total dietary fat. These changes are consistent with recommendations of the *Dietary Guidelines for Americans*, developed by the U.S. Departments of Agriculture and Health and Human Services, to eat a diet low in fat and with plenty of vegetables, fruits, and grain products.
- Other dietary changes included an increase in the amount of meat and grain mixtures consumed, such as hamburgers on a bun, pizza, and rice mixtures, and a decrease in beef and pork, such as steaks or roasts that were eaten separately, not as part of a mixture. Intakes of eggs were down, and intakes of dark green vegetables were up. Consumption of carbonated soft drinks increased.

See data tables for detailed notes.

Reference

1. Putnam JJ, Allshouse JE. Food consumption, prices, and expenditures, 1970–90. Washington: U.S. Department of Agriculture. 1992.

Fruit and Vegetable Consumption

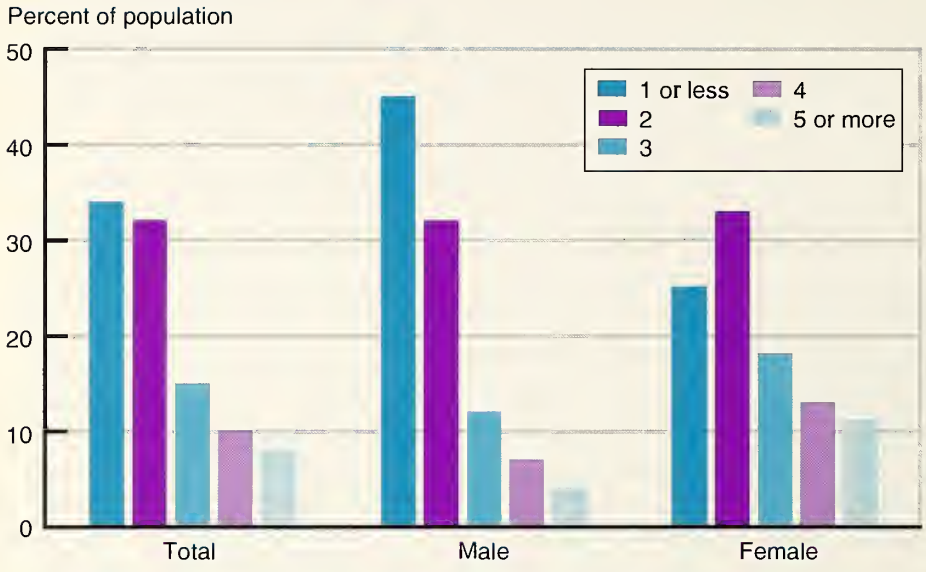

Figure 30. Number of servings of fruits and vegetables adults believe they should consume each day, 1991

SOURCE: National Institutes of Health, National Cancer Institute, Division of Cancer Prevention and Control, 5 A Day for Better Health Baseline Survey, 1991 †.

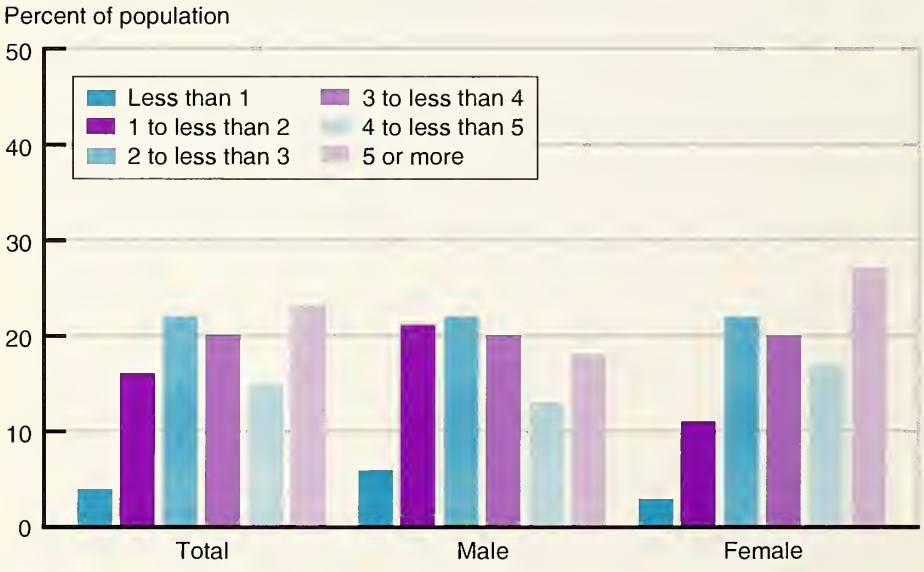

Figure 31. Reported number of servings of fruits and vegetables adults consume each day, 1991

SOURCE: National Institutes of Health, National Cancer Institute, Division of Cancer Prevention and Control, 5 A Day for Better Health Baseline Survey, 1991 †.

One of the *Healthy People 2000* objectives is to increase the average intake of fruits and vegetables to five or more servings per day. The National 5 A Day for Better Health Program was designed to help Americans achieve that objective. Data presented here are from a baseline telephone survey conducted in 1991 at the start of the program to assess current consumption of fruits and vegetables and current knowledge and attitudes about diet and nutrition.

- The survey showed that awareness of the proper number of daily fruit and vegetable servings was low and overall consumption lagged well below recommended amounts. Only 8 percent of adults thought they should eat five or more servings of fruits and vegetables each day; 66 percent believed two or fewer servings were sufficient (figure 30).
- Seventy-seven percent of American adults ate less than the recommended number of servings per day.
- Compared with women, men were less likely to think that they should be eating more fruits and vegetables: only 4 percent of men believed they should have five or more servings per day, compared with 11 percent of women. Forty-five percent of men believed that a single serving was adequate, compared with 25 percent of women.
- Since men generally consume more food than women do, data from this survey indicate they ate fewer servings of fruits and vegetables each day (figure 31).

See data tables for detailed notes.

Intakes of Milk and Milk Products

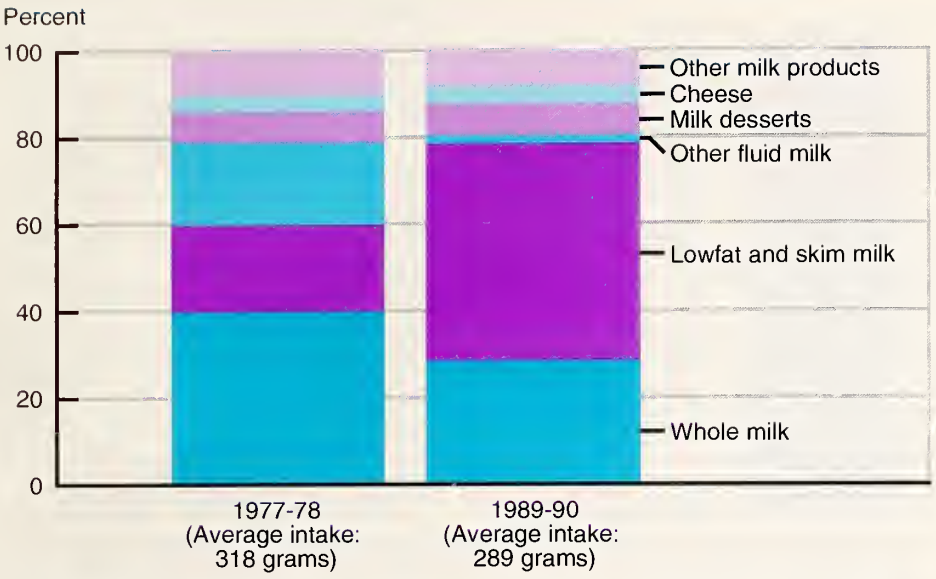

Figure 32. Average intakes of total milk products and share of total from selected milk categories: One day's intake, 1977–78 and 1989–90

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Nationwide Food Consumption Survey, 1977–78 †, and Continuing Survey of Food Intakes by Individuals, 1989–90 †.

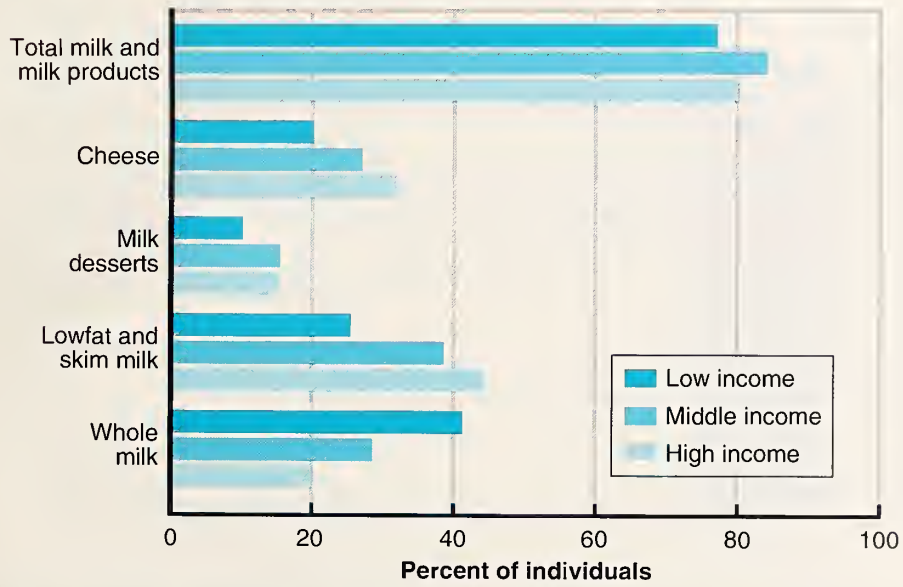

Figure 33. Percent of individuals consuming milk and milk products, by income: One day's intake, 1989–90

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989–90 †.

Americans consumed slightly less milk and milk products in 1989–90 than in the previous decade, according to a comparison of results of the 1977–78 Nationwide Food Consumption Survey with those of the 1989–90 Continuing Survey of Food Intakes by Individuals (figure 32). The share of the total accounted for by various milk product subgroups also changed.

- As a share of total milk and milk products consumed, Americans consumed more lowfat and skim milk, but less whole milk and other fluid milk products. For the population as a whole, 50 percent of all the fluid milk consumed in a day was lowfat; 37 percent was whole; and 13 percent was skim. Milk desserts and cheese (eaten separately, not in a mixture) remained about the same as a share of the total, as did consumption of other milk products, including yogurt and milk items not specified in one of the above subgroups. These changes are supported by per capita food supply (disappearance) estimates (1).
- The percentages of people consuming total milk and milk products were similar across all income groups (figure 33). Nearly 8 of 10 Americans in each income group had one or more milk products on any given day. However, the type of milk and milk product consumed varied by income group. People in the low income group were less likely than people in other income groups to drink lowfat or skim milk and more likely to drink whole milk. Low income people were less likely to eat milk desserts and cheese than people in the middle and upper income groups.

See data tables for detailed notes.

Reference

1. Putnam JJ, Allshouse JE. Food consumption, prices, and expenditures, 1970–90. Washington: U.S. Department of Agriculture, 1992.

Food Sources of Calcium Among Hispanics

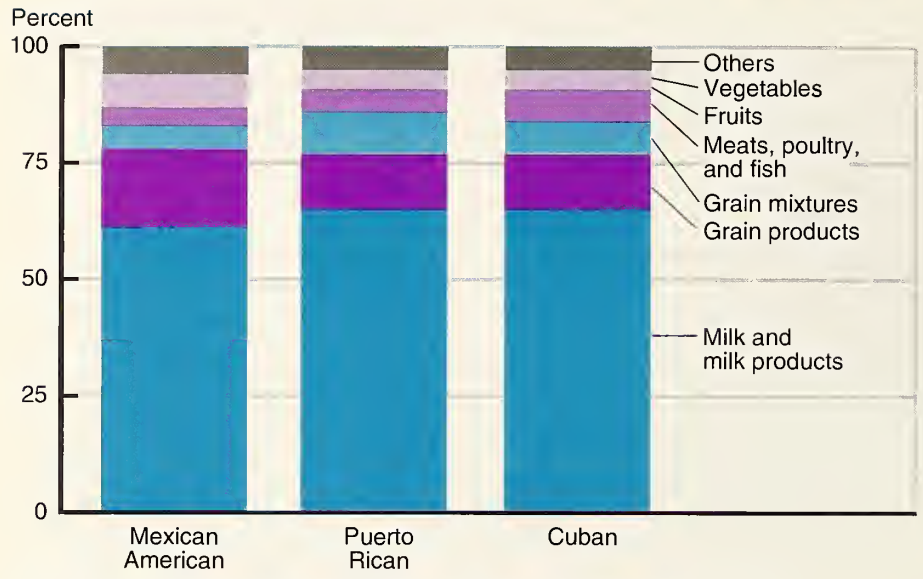

Figure 34. Food group sources of calcium and percent of total calcium among adolescents 11–17 years of age, by Hispanic origin, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

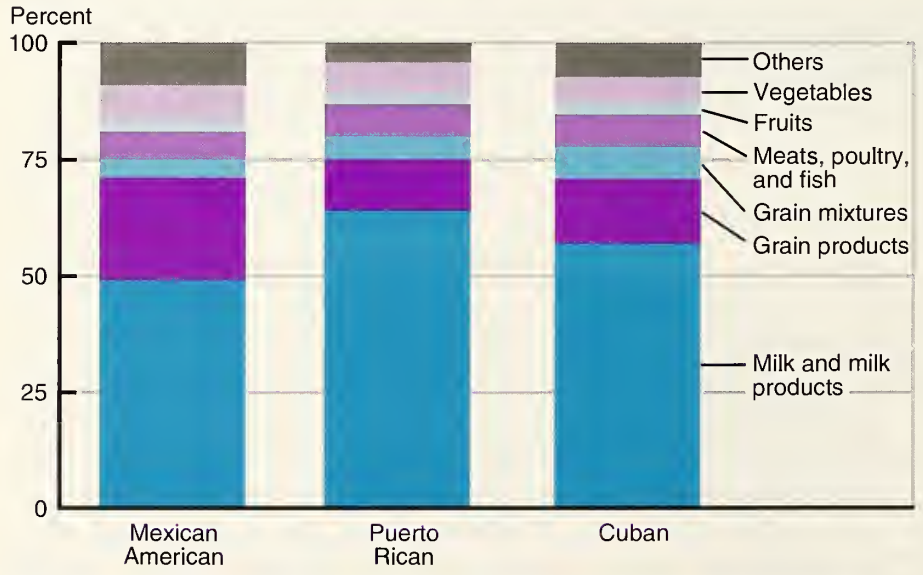

Figure 35. Food group sources of calcium and percent of total calcium among adults 18–74 years of age, by Hispanic origin, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

Low calcium intake has been linked with an increased risk for osteoporosis, hypertension, and colon cancer (1). The Subcommittee on the Tenth Edition of the Recommended Dietary Allowances stressed the importance of adequate calcium intakes for children and young adults to reduce the risk of osteoporosis in later life. Figures 34 and 35 show food sources of calcium and the percent contribution of each food group to total calcium for adolescents and adults, respectively, for the Hispanic subgroups studied in the 1982–84 Hispanic Health and Nutrition Examination Survey.

- Milk and milk products contributed the largest amount of calcium for all groups, followed by grain products. Mexican Americans consumed slightly more grain products and less milk and milk products than Cubans and Puerto Ricans.
- The largest food sources of calcium for Mexican Americans were cow's milk, corn tortillas, cheese, white bread, flour tortillas, refried beans, and fried eggs.
- For Cubans, the largest food sources of calcium were cow's milk, cheese, white bread, white rice, cheese pizza, and ice cream.
- The largest food sources of calcium for Puerto Ricans were cow's milk, cheese, white bread, cheese pizza, rice, bread, and fried eggs (2).

See data tables for detailed notes.

References

1. National Research Council. Diet and health: Implications for reducing chronic disease risk. Washington: National Academy Press. 1989.
2. Looker AC, Loria CM, Carroll MD, et al. Calcium intakes of Mexican Americans, Cubans, Puerto Ricans, and non-Hispanics in the U.S. J Am Diet Assoc. In press.

Apparent Per Capita Alcohol Consumption

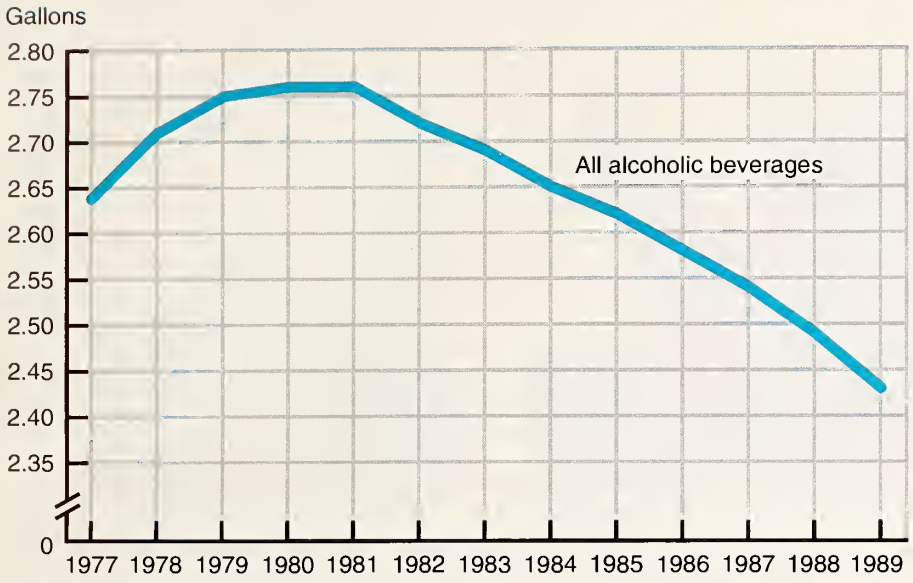

Figure 36. Apparent annual per capita ethanol consumption, 1977–1989

SOURCE: National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Division of Biometry and Epidemiology, Alcohol Epidemiologic Data System §.

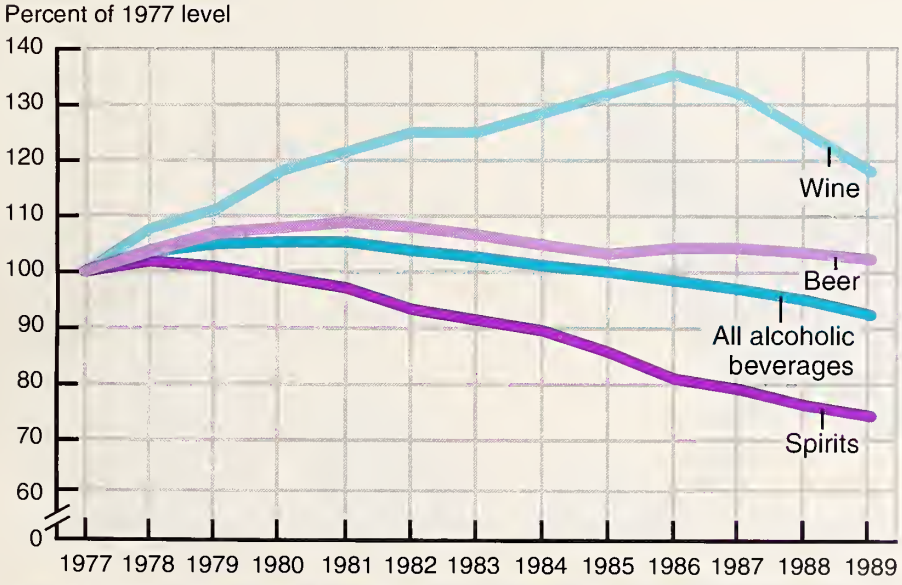

Figure 37. Percent change in apparent per capita ethanol consumption, 1977–89

SOURCE: National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Division of Biometry and Epidemiology, Alcohol Epidemiologic Data System §.

Healthy People 2000 seeks to reduce alcohol consumption by Americans 14 years of age and over to an annual average of no more than 2 gallons of ethanol per person. Per capita alcohol consumption calculations are based primarily upon beverage sales data from each State and the District of Columbia. Shipments data from major beverage industry sources are used for those States that do not furnish sales data.

- In 1989 apparent per capita ethanol consumption was 2.43 gallons for each male and female 14 years of age and over (figure 36). This amount of alcohol is roughly equivalent to 311 twelve-ounce bottles of beer, 67 five-ounce glasses of wine, and 161 one and one-half-ounce shots of 80-proof distilled spirits.
- Per capita alcohol consumption peaked in 1980 and has decreased annually since 1981. In 1989 alcohol consumption reached its lowest per capita level since 1968 (data not shown). In 1989 beer ranked fourth (behind soft drinks, coffee, and milk) in per capita beverage consumption and wine ranked seventh (behind bottled water and tea).
- With minor fluctuations, beer consumption has been fairly level since 1977 (figure 37). Wine consumption increased steadily from 1977 to 1986 and has decreased each subsequent year, with 1989 levels 10 percent higher than in 1977. Consumption of spirits increased marginally from 1977 to 1978 but has declined steadily since then. Per capita spirits consumption in 1989 was at its lowest level since 1955 (1).

See data tables for detailed notes

Reference

1. Williams G, Stinson F, Brooks S, et al. Apparent per capita alcohol consumption: National, State, and regional trends, 1977–1989; Surveillance Report no 20. Rockville, Maryland: National Institute on Alcohol Abuse and Alcoholism. 1991.

Apparent Per Capita Alcohol Consumption by State

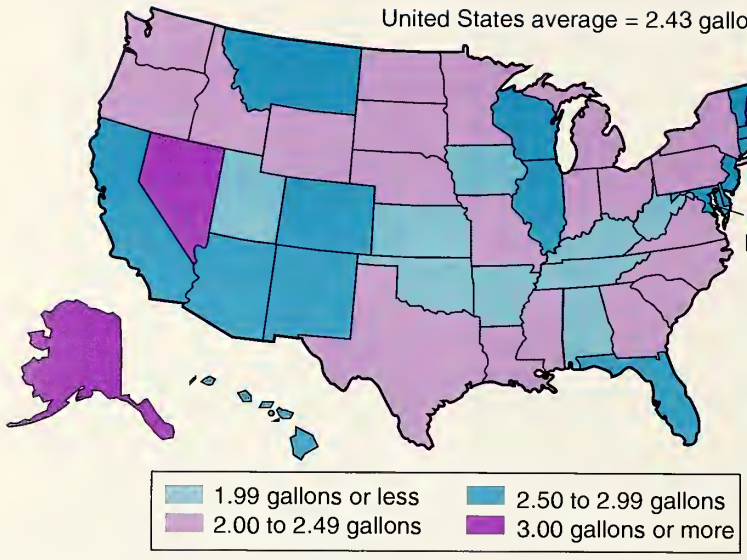

Figure 38. Apparent total per capita ethanol consumption in gallons, by State, 1989

SOURCE: National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Division of Biometry and Epidemiology, Alcohol Epidemiologic Data System §.

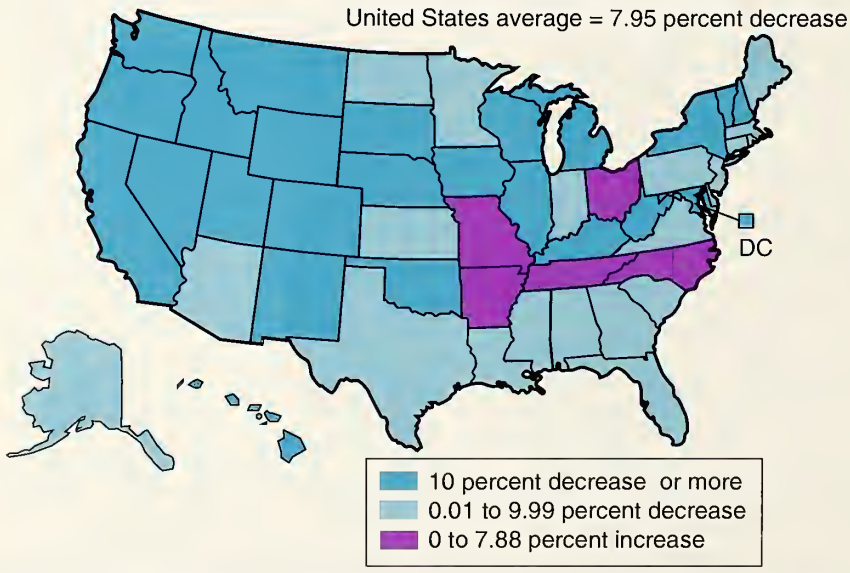

Figure 39. Percent change in apparent total per capita ethanol consumption, by State, 1977–89

SOURCE: National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Division of Biometry and Epidemiology, Alcohol Epidemiologic Data System §.

Figure 38 shows 1989 total apparent per capita alcohol consumption for each State and the District of Columbia, divided into four levels of consumption. Per capita alcohol consumption calculations were based primarily upon beverage sales data from each State and the District of Columbia. Shipments data from major beverage industry sources were used for those States that did not furnish sales data. Per capita consumption data for some States may be inflated by cross-border sales to buyers from neighboring States. Other factors that influence consumption in the individual States include the age distribution of the State's population, tourist trade, the number of dry jurisdictions (areas where the sale of alcohol is prohibited), and general attitudes towards drinking.

- Figure 39 shows the percent change in overall apparent per capita consumption among the individual States between 1977 and 1989. States experiencing increases were Ohio, Arkansas, and North Carolina. Per capita consumption was the same in 1989 as in 1977 in Missouri, Delaware, and Tennessee. The greatest decreases in per capita alcohol consumption occurred in Nevada, Wyoming, the District of Columbia, New Hampshire, and Montana.
- These percent changes should be interpreted with reference to the specific per capita consumption values of the States involved. For example, per capita alcohol consumption in 1989 was greatest in Nevada, New Hampshire, and the District of Columbia, despite dramatic decreases in consumption in these jurisdictions over the study period (1).

See data tables for detailed notes.

Reference

1. Williams G, Stinson F, Brooks S, et al. Apparent per capita alcohol consumption: National, State, and regional trends, 1977–1989; Surveillance report no 20. Rockville, Maryland: National Institute on Alcohol Abuse and Alcoholism. 1991.

Alcohol Consumption Among Individuals

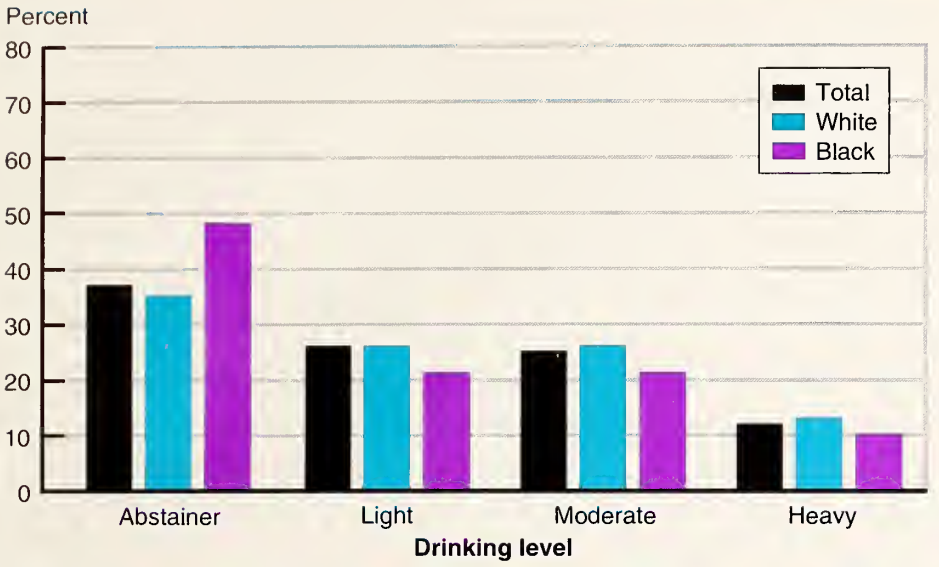

Figure 40. Alcohol consumption among males, by race, 1988

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, and National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Alcohol Supplement of the National Health Interview Survey, 1988 †.

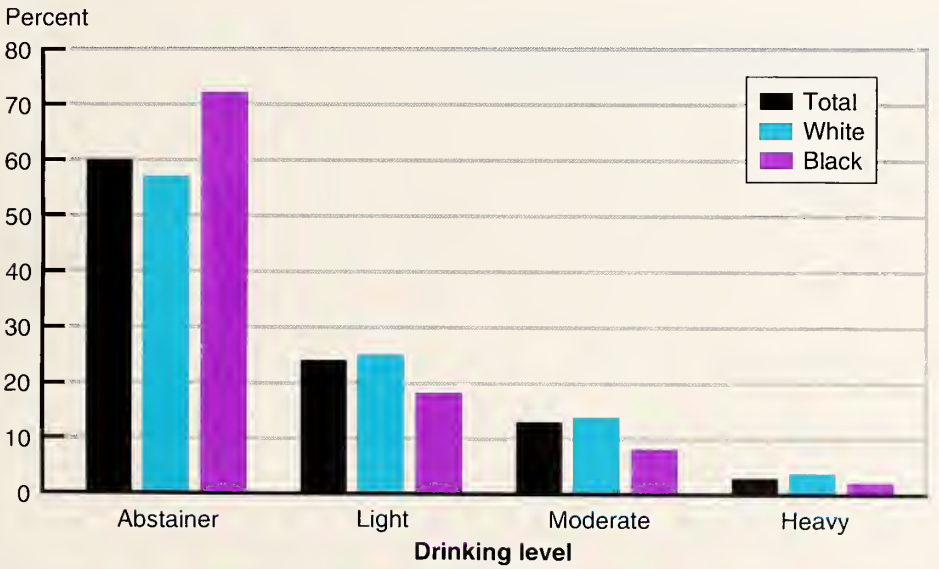

Figure 41. Alcohol consumption among females, by race, 1988

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, and National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Alcohol Supplement of the National Health Interview Survey, 1988 †.

Per capita alcohol consumption is a useful measure of alcohol use over time. However, a major drawback of this concept is that it assumes that everyone in a given population consumes alcoholic beverages, which is not the case. In addition, levels of alcohol consumption vary considerably among individuals.

- Figures 40 and 41 display the drinking levels in the United States in 1988 by race for men and women, respectively. These estimates are based on data from the Alcohol Supplement of the 1988 National Health Interview Survey, a nationwide household interview survey.
- The data show that males were more likely to be heavy drinkers and less likely to be abstainers than females. The black population was more likely to be abstainers and less likely to be heavy drinkers than were the white population (1).

See data tables for detailed notes.

Reference

1. Quick Facts Electronic Bulletin Board of the Alcohol Epidemiologic Data System. Rockville, Maryland: National Institute on Alcohol Abuse and Alcoholism. 1992.

Nutrient Consumption

Mean Food Energy Intakes

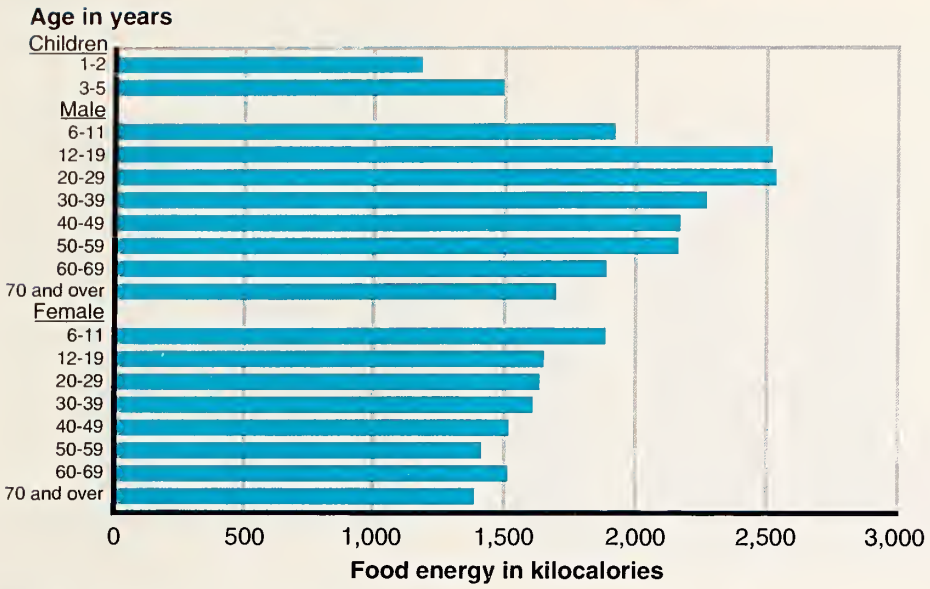

Figure 42. Mean food energy intakes, by sex and age: One day's intake, 1989–90

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989–90 †.

- The mean food energy intake of Americans was approximately 1,800 calories per day according to results of the 1989–90 Continuing Survey of Food Intakes by Individuals. Among males 20 years of age and over, the mean dietary food energy intake was 2,200 kilocalories per day, and among females in this age group the mean food energy intake was 1,500 kilocalories per day.
- Males 12–29 years of age had the highest mean food energy intake of any group, approximately 2,500 kilocalories per day. Food energy intakes peaked at 20–29 years of age for males, and at 6–11 years of age for females, and then generally declined with age for both groups (figure 42).

Sources of Food Energy Among Hispanics

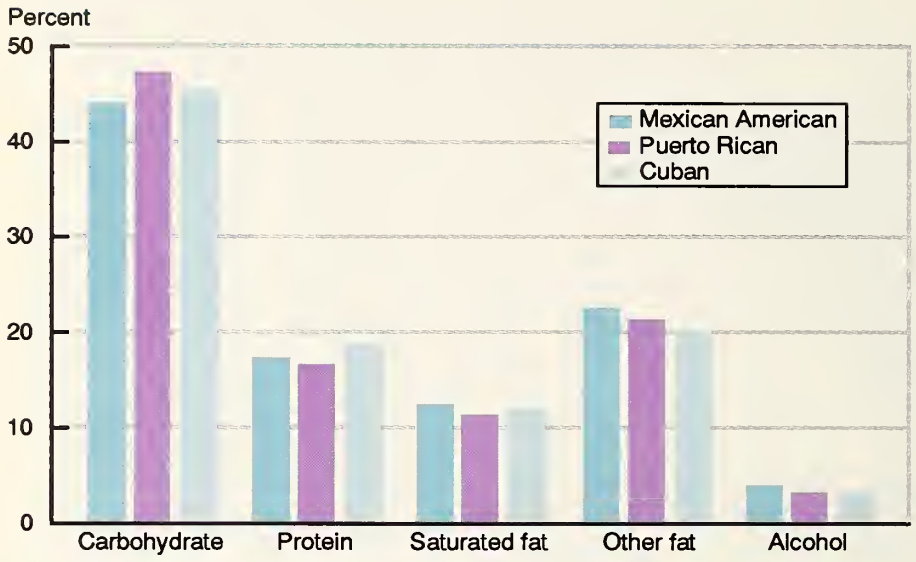

Figure 43. Age-adjusted distribution of food energy intakes from carbohydrate, protein, fat, saturated fat, and alcohol for Hispanic males 20–74 years of age, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

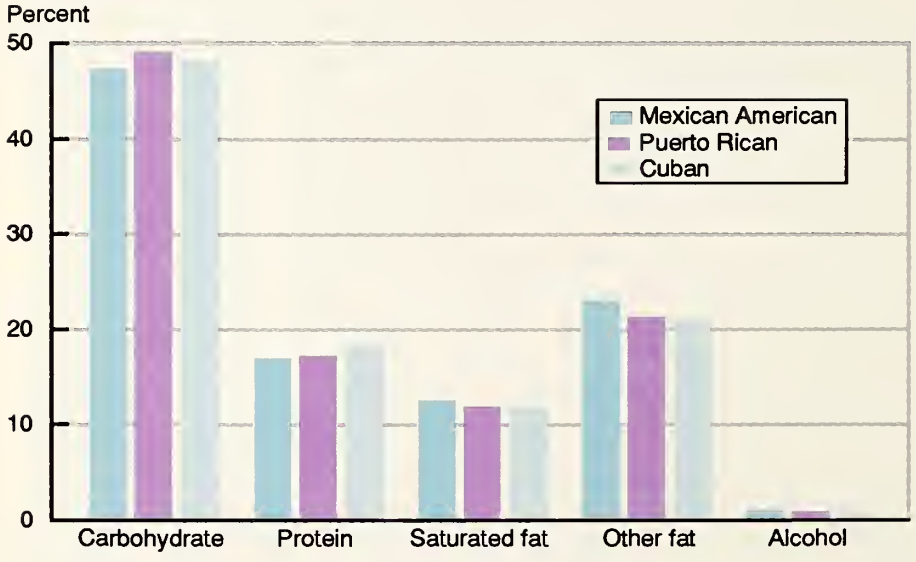

Figure 44. Age-adjusted distribution of food energy intakes from carbohydrate, protein, fat, saturated fat, and alcohol for Hispanic females 20–74 years of age, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

Shown are the age-adjusted distributions of food energy from total fat, saturated fat, carbohydrate, protein, and alcohol for Mexican-American, Cuban, and Puerto Rican males (figure 43) and females (figure 44), 20–74 years of age, from the 1982–84 Hispanic Health and Nutrition Examination Survey. Results were obtained from 24-hour dietary recall data.

- Mean fat intakes as a percent of food energy for Mexican-American men and women were between 2 and 3 percent higher than those of Puerto Rican and Cuban men and women.
- Mean fat intakes of both men and women in all three Hispanic subgroups exceeded the recommendation of the *Dietary Guidelines for Americans* to consume no more than 30 percent of kilocalories from fat each day.
- Mean saturated fat intakes for all six sex and Hispanic subgroup categories exceeded the Dietary Guideline recommendation to consume less than 10 percent of daily kilocalories from saturated fat. For each Hispanic subgroup, saturated fat contributed approximately 12 percent of food energy in kilocalories; Mexican Americans had the highest intakes of saturated fat (1).

Reference

1. Carroll MD, Loria CM, Looker AC, et al. Dietary intake of Hispanics, 1982–84. Unpublished data from the National Center for Health Statistics, Division of Health Examination Statistics. 1992.

Percent of Food Energy From Dietary Fat

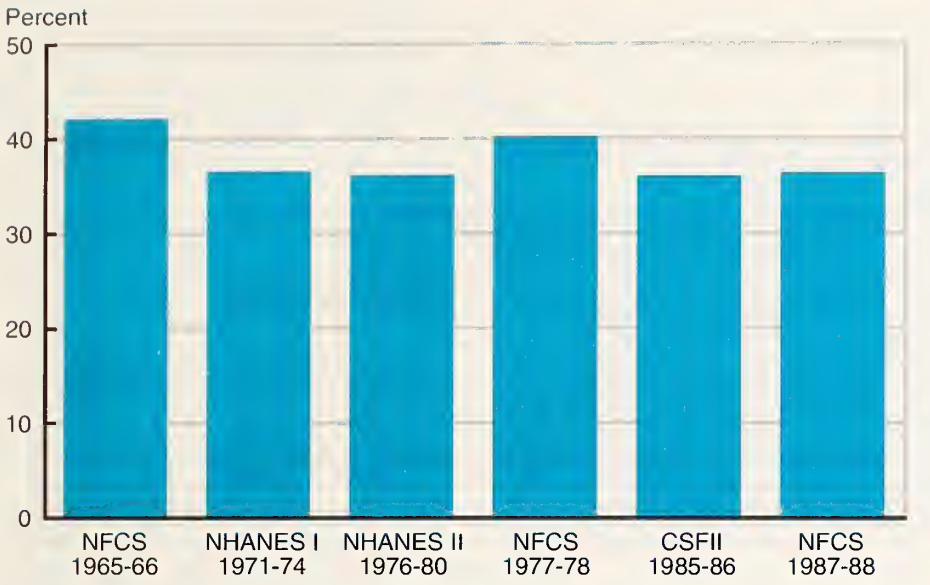

Figure 45. Food energy from dietary fat for selected years, 1965–88

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Nationwide Food Consumption Survey, 1965–66, 1977–78, and 1987–88 †, Continuing Survey of Food Intakes by Individuals, 1985–86 †, and the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey, 1971–74 and 1976–80 †.

Evidence indicates that excess intake of dietary fats is associated with coronary heart disease, certain types of cancers, obesity, and gallbladder disease (1). The *Dietary Guidelines for Americans*, developed by the U.S. Departments of Agriculture and Health and Human Services, and the Food and Nutrition Board's Committee on Diet and Health (2) recommend a diet that contains no more than 30 percent of kilocalories from fat.

Figure 45 compares percent of food energy from dietary fat based on 1-day intakes across six national surveys that span more than two decades. The surveys include the 1965–66, 1977–78, and 1987–88 Nationwide Food Consumption Surveys (NFCS); the 1971–74 and 1976–80 National Health and Nutrition Examination Surveys (NHANES); and the 1985–86 Continuing Survey of Food Intakes by Individuals (CSFII).

- Since the percent of kilocalories from fat has varied by survey over the years and has declined from about 42 percent in 1965–66 to about 36 percent in the 1980s, recent estimates remain above the recommended level of 30 percent.
- The different results in fat intakes between surveys in the 1970s may in part be explained by differences in data collection and coding procedures and in food composition data bases used in the surveys.

See data tables for detailed notes.

References

1. Life Sciences Research Office, Federation of American Societies for Experimental Biology. Nutrition monitoring in the United States – An update report on nutrition monitoring. Hyattsville, Maryland: Public Health Service. 1989.
2. National Research Council. Diet and health: Implications for reducing chronic disease risk. Washington: National Academy Press, 1989.

Fat Consumption in the Military

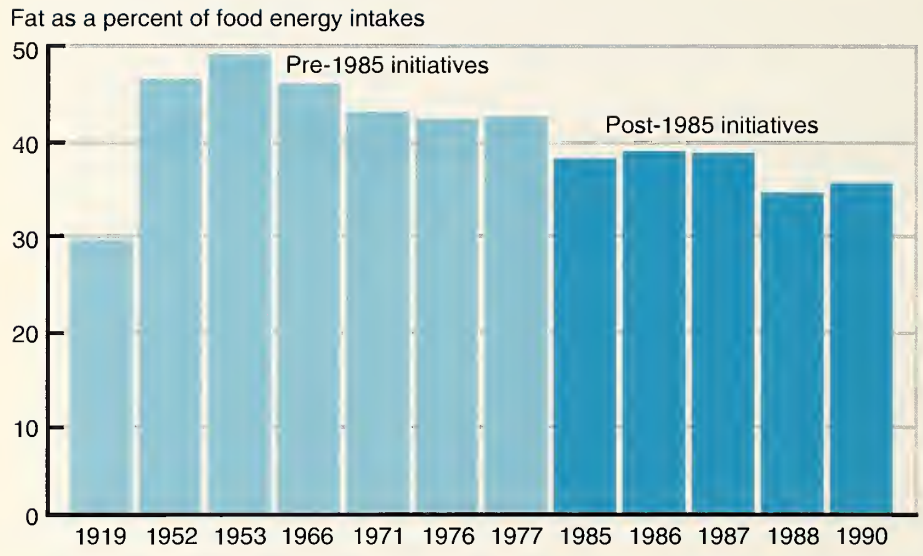

Figure 46. Dietary fat intakes of military personnel for selected years, 1919–90

SOURCE: U.S. Department of Defense, U.S. Army Research Institute of Environmental Medicine, Military Nutrition Division ¶.

The military introduced nutrition initiatives in 1985 as part of the Department of Defense Health Promotion program. One key nutrition initiative focused on reducing military personnel's total fat intakes to no more than 35 percent of total food energy intakes (1). The approaches used to reach this goal were to serve low fat milk as the primary milk in troop dining facilities, to modify menus, recipes, and methods of food preparation, and to educate cooks and diners on how and why to reduce dietary fat intakes.

- Figure 46 shows trends in dietary fat intakes of military personnel eating in military dining facilities before and after the 1985 nutrition initiative efforts (2,3). In the early 1900s fat intake accounted for about 30 percent of food energy intakes. During the 1950s–70s fat contributed 40–49 percent of food energy intakes. By 1990 fat intakes of military personnel had been reduced to the goal of 35 percent of food energy.
- In 1991 the Food and Nutrition Board's Committee on Military Nutrition Research recommended a goal for military personnel to reduce their total fat intake to 30 percent or less of total food energy intakes (4).

See data tables for detailed notes.

References

1. Army Regulation 40–25. Nutrition allowances, standards, and education. Washington: Headquarters, Department of the Army. 1985.
2. Murlin J, Miller C. Preliminary results of nutritional surveys in United States army camps. Amer J Public Health 9(6):401–13. 1919.
3. Quantico Marine Corps Base. Unpublished data from U.S. Army Research Institute of Environmental Medicine. Natick, Massachusetts. 1990.
4. Committee on Military Nutrition Research, Institute of Medicine. Military nutrition initiatives. Washington: National Academy Press. 1991.

Cholesterol Intakes Among Hispanics

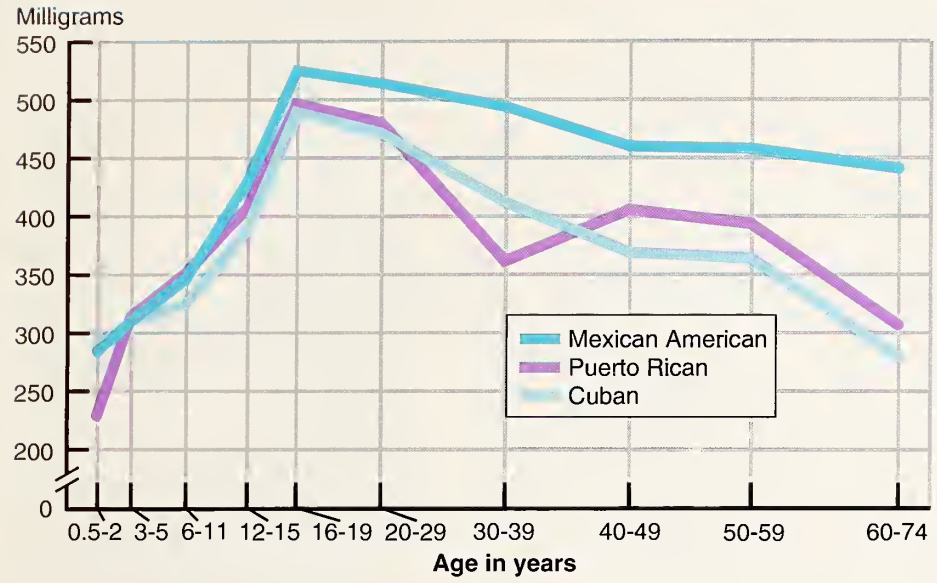

Figure 47. Mean cholesterol intakes for males 6 months–74 years of age, by Hispanic origin and age, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

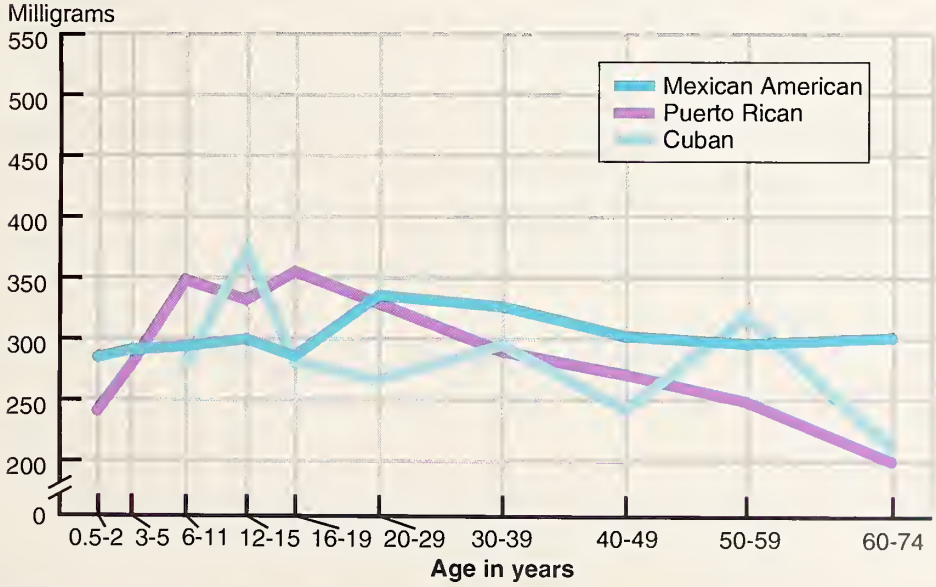

Figure 48. Mean cholesterol intakes for females 6 months–74 years of age, by Hispanic origin and age, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

The Surgeon General's Report on Nutrition and Health indicates that a diet high in saturated fat and cholesterol is associated with an increased risk of developing atherosclerosis and coronary heart disease. The expert panels of the National Cholesterol Education Program for children, adolescents, and adults recommend cholesterol intakes of no more than 300 milligrams per day for individuals (1,2). Figures 47 and 48 show the mean cholesterol intakes of Mexican-American, Puerto Rican, and Cuban males and females, respectively, 6 months of age and over, from the 1982–84 Hispanic Health and Nutrition Examination Survey.

- Mean cholesterol intakes for most males and females 2 years of age and over were above 300 milligrams per day. This was true for all three Hispanic subgroups.
- Males tended to have higher cholesterol intakes than females, except during childhood, and younger adults had slightly higher intakes than older adults (3).

See data tables for detailed notes.

References

1. National Cholesterol Education Program. Report of the expert panel on blood cholesterol levels in children and adolescents. Bethesda, Maryland: National Institutes of Health. 1991.
2. National Cholesterol Education Program. Report of the expert panel on population strategies for blood cholesterol reduction. Bethesda, Maryland: National Institutes of Health. 1990.
3. Carroll MD, Loria CM, Looker AC, et al. Dietary intake of Hispanics, 1982–84. Unpublished data from the National Center for Health Statistics, Division of Health Examination Statistics. 1992.

Nutrient Intakes Among Adults

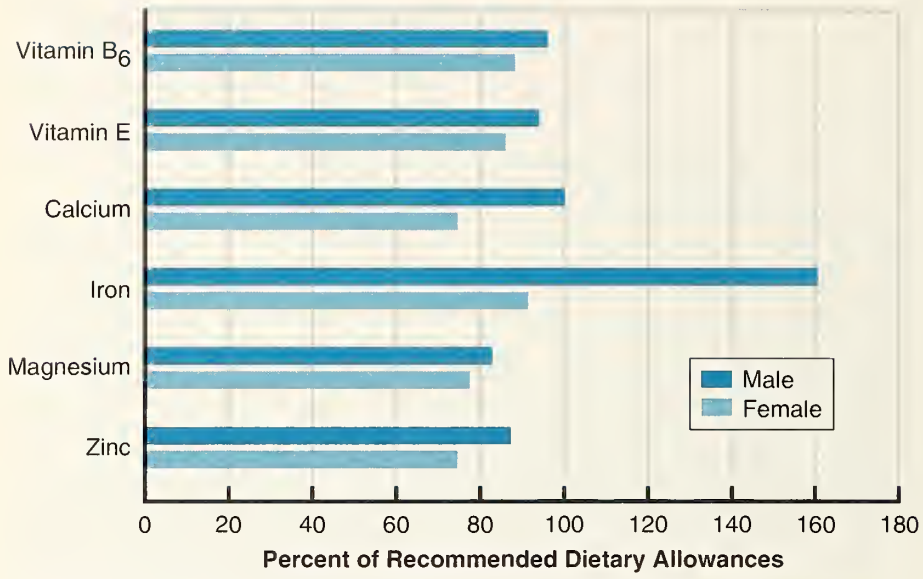

Figure 49. Mean intakes of selected nutrients as a percent of the 1989 Recommended Dietary Allowances for adults 20 years of age and over: One day's Intake, 1989–90

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989–90 †.

Results of the 1989–90 Continuing Survey of Food Intakes by Individuals suggest that on average both men and women meet the 1989 Recommended Dietary Allowances (RDA) for the majority of nutrients examined. Men meet the RDA for more nutrients than do women because they tend to eat more than women.

- On the average males met the RDA for 11 of the 15 nutrients examined: protein, vitamin A, vitamin C, thiamin, riboflavin, niacin, folate, vitamin B_{12}, calcium, phosphorus, and iron (data shown for selected nutrients). Average intakes by males of vitamin B_6, vitamin E, magnesium, and zinc fell short of the RDAs (figure 49).
- On the average females met the RDA for 9 of the 15 nutrients examined: protein, vitamin A, vitamin C, thiamin, riboflavin, niacin, folate, vitamin B_{12}, and phosphorus. Intakes by females of vitamin B_6, vitamin E, calcium, iron, magnesium, and zinc fell short of the RDAs (figure 49).

Carotenoid Intakes Among Hispanics

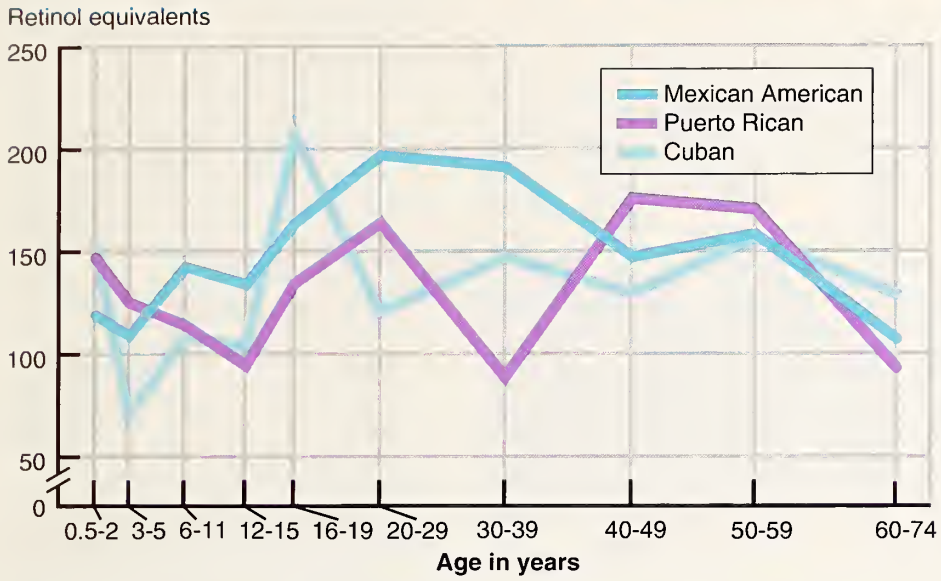

Figure 50. Median carotenoid intakes for males 6 months–74 years of age, by Hispanic origin and age, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

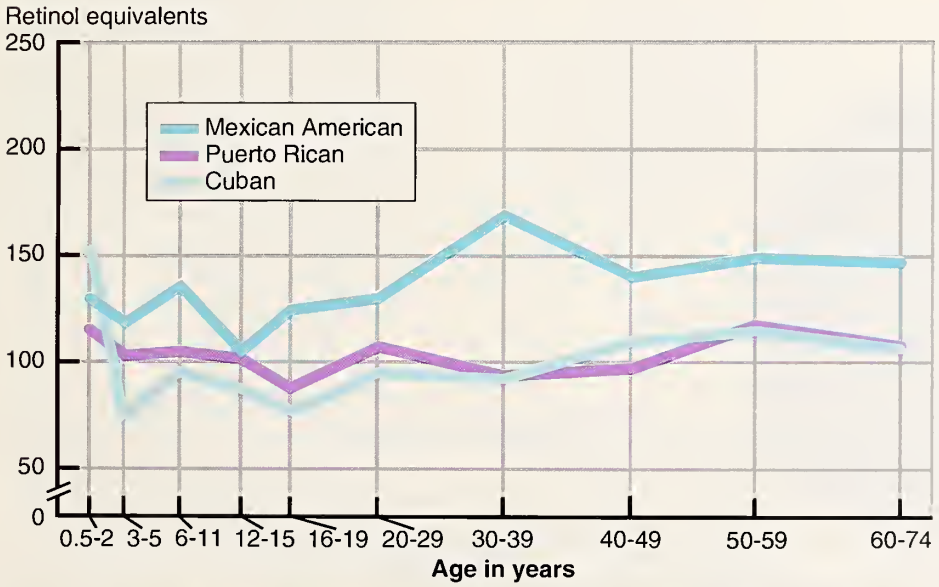

Figure 51. Median carotenoid intakes for females 6 months–74 years of age, by Hispanic origin and age, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

According to *The Surgeon General's Report on Nutrition and Health*, there is a growing body of evidence that suggests that food rich in vitamin A and carotenoids are protective against a variety of epithelial cancers. Shown here are the median carotenoid intakes of Mexican Americans, Cubans, and Puerto Ricans 6 months–74 years of age from the 1982–84 Hispanic Health and Nutrition Examination Survey.

- Mexican-American females 3 years of age and over had consistently higher median carotenoid intakes than their Cuban or Puerto Rican counterparts, but this was not always true for males (figures 50 and 51). Median intakes of carotenoids for both males and females for all age groups fell below the Recommended Dietary Allowances (1).

See data tables for detailed notes.

Reference

1. Carroll MD, Loria CM, Looker AC, et al. Dietary intake of Hispanics, 1982–84. Unpublished data from the National Center for Health Statistics, Division of Health Examination Statistics. 1992.

Selected Mineral Intakes

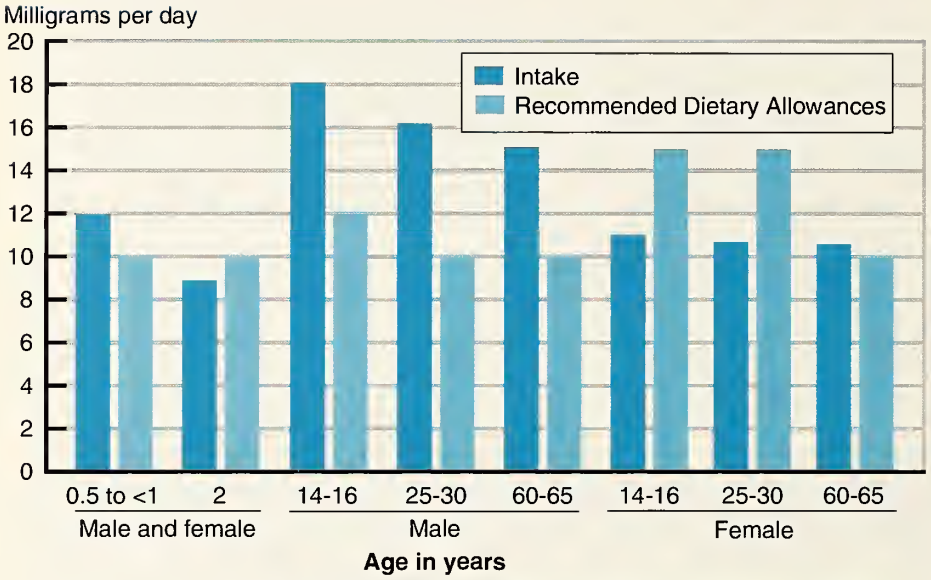

Figure 52. Mean iron levels in the diets of eight age-sex groups, compared with the 1989 Recommended Dietary Allowances, 1982–89

SOURCE: Food and Drug Administration, Center for Food Safety and Applied Nutrition, Total Diet Study ‡.

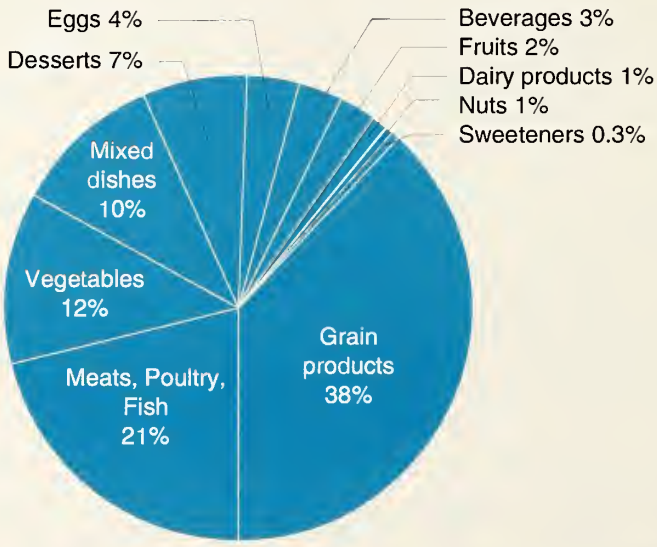

Figure 53. Percent contributions of food groups to the daily iron intakes of teenagers and adults, for selected age groups, 1982–89

SOURCE: Food and Drug Administration, Center for Food Safety and Applied Nutrition, Total Diet Study ‡.

From 1982 to 1989 the Total Diet Study included annual assessments of representative diets of 8 age-sex groups for 11 nutritional elements and a series of contaminants.

- Compared with the intakes recommended by the National Academy of Sciences (1), sodium intakes (which did not include discretionary salt) exceeded the estimated minimum requirement; intakes of potassium, phosphorus, selenium, and iodine were adequate for all groups; and copper intakes were low (less than 80 percent of the suggested minimum intakes) for all groups.
- Calcium was low [less than 80 percent of the Recommended Dietary Allowance (RDA)] in the diets of 2-year-olds and of teenage, adult, and older females. Magnesium was low in the diets of teenage males and females, adult females, and older males and females. Iron and manganese were low in the diets of teenage and adult females. Figure 52 indicates the average intakes of iron for the eight age-sex groups compared with RDAs.
- The primary food group source for potassium, calcium, phosphorus, magnesium, and iodine was dairy products; for sodium, iron, and manganese it was grain products; and for zinc, selenium, and copper it was meats, poultry, and fish. Figure 53 indicates the percent contribution of food groups to the iron intakes of teenagers and adults.
- The levels of intakes of the nutritional elements and the food sources of the elements remained stable over the years of the study, with no indication of notable trends (2).

See data tables for detailed notes.

References

1. National Academy of Sciences. Recommended dietary allowances, 10th ed. Washington: National Academy Press. 1989.
2. Pennington JAT, Young BE. Total Diet Study nutritional elements, 1982–1989. J Am Diet Assoc 91(2):179–83. 1991.

Iron Intakes Among Hispanics

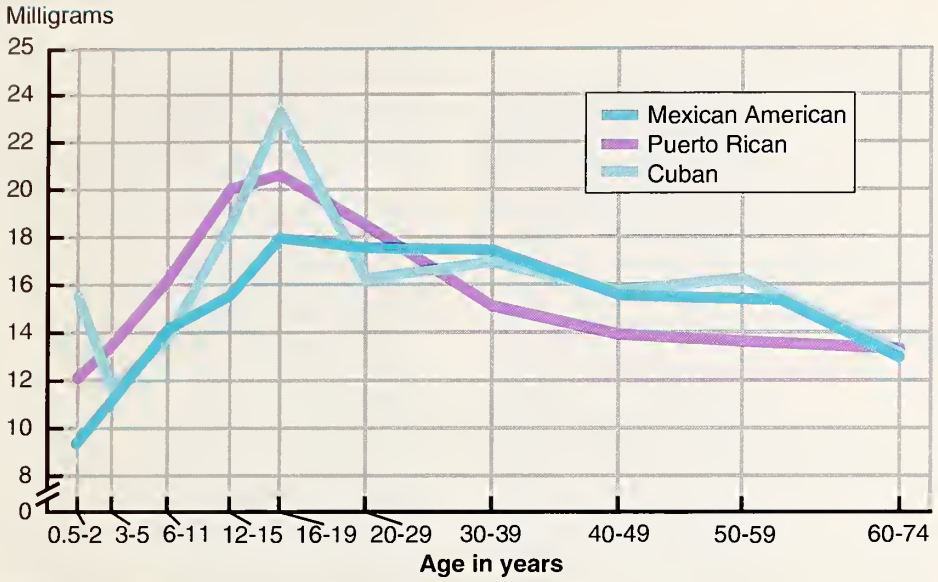

Figure 54. Mean iron intakes for males 6 months–74 years of age, by Hispanic origin and age, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

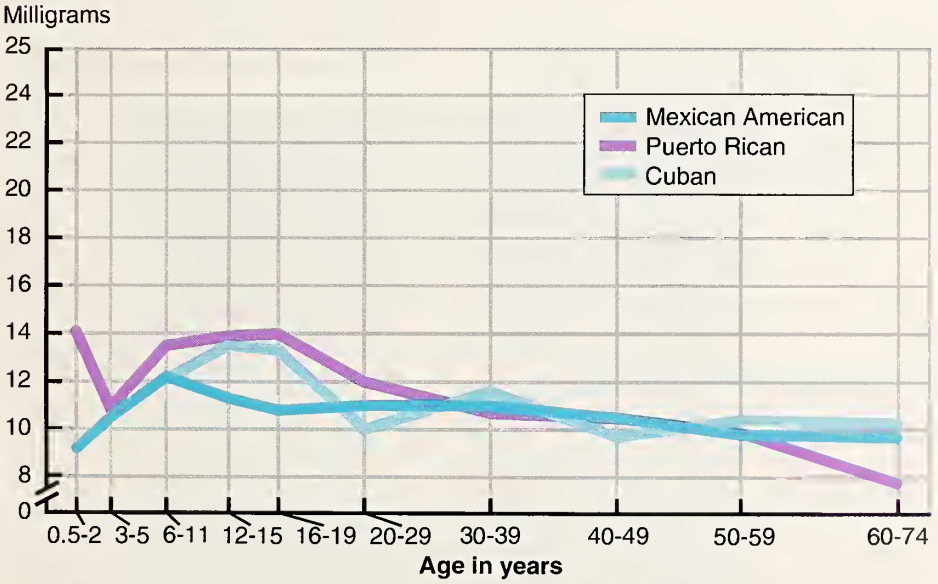

Figure 55. Mean iron intakes for females 6 months–74 years of age, by Hispanic origin and age, 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

According to *The Surgeon General's Report on Nutrition and Health*, iron deficiency is generally the most common cause of anemia (a reduction below normal in erythrocytes, hemoglobin, or hematocrit). The consequences of iron deficiency include impaired work performance, body temperature regulation, behavior, and intellectual performance; decreased resistance to infections; and increased susceptibility to lead poisoning. Figures 54 and 55 show mean iron intakes for males and females, respectively, 6 months–74 years of age for Mexican Americans, Cubans, and Puerto Ricans studied in the 1982–84 Hispanic Health and Nutrition Examination Survey (1). Iron intakes were derived from single 24-hour dietary recalls.

- Puerto Ricans 6 months–29 years of age showed consistently higher mean iron intakes than their Mexican-American counterparts, but the opposite was true after 29 years of age.
- Males from all three Hispanic subgroups had higher iron intakes than females, except for Puerto Rican males 2 years and younger who had lower iron intakes than females.
- Mean iron intakes of Cuban and Puerto Rican children 6 months–2 years of age met the 1989 Recommended Dietary Allowance (RDA), while intakes of Mexican-American infants were slightly below the RDA.
- Mean iron intakes for Mexican-American, Cuban, and Puerto Rican males met the RDA for iron for each age group above 2 years; this was not true for females.

See data tables for detailed notes.

Reference

1. Carroll MD, Loria CM, Looker AC, et al. Dietary intake of Hispanics, 1982–84. Unpublished data from the National Center for Health Statistics, Division of Health Examination Statistics. 1992.

Calcium Intakes

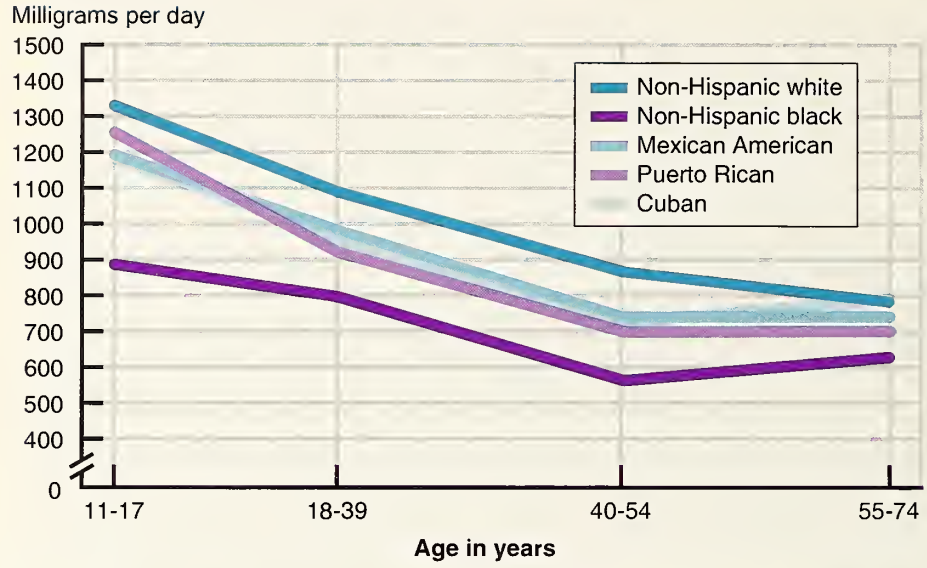

Figure 56. Mean calcium intakes for males 11–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80 †, and Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

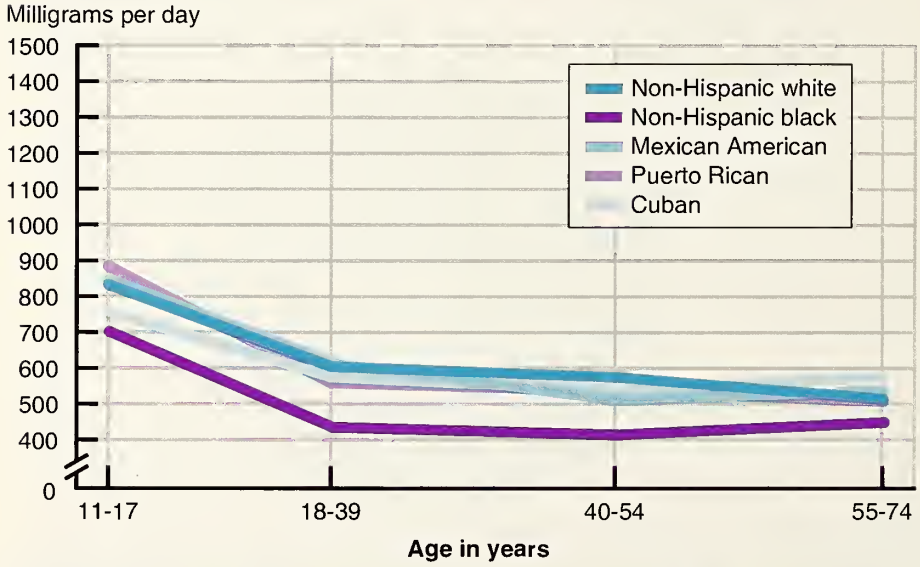

Figure 57. Mean calcium intakes for females 11–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80 †, and Hispanic Health and Nutrition Examination Survey, 1982–84 ¶.

Low calcium intake has been linked with an increased risk for osteoporosis, hypertension, and colon cancer (1). Figures 56 and 57 show mean reported intakes of calcium for adolescent and adult males and females, respectively, from the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES) and the 1976–80 National Health and Nutrition Examination Survey. The Hispanic populations examined in HHANES were Mexican Americans, Cubans, and Puerto Ricans. Calcium intakes for both surveys were derived from single 24-hour dietary recalls.

- Mean calcium intakes from food were higher for males than mean intakes for females. People under 18 years of age had larger calcium intakes than people 18 years of age and over.
- Mean calcium intakes for women for all age, race, and ethnic groups were below the Recommended Dietary Allowances. Non-Hispanic black men and women had mean calcium intakes substantially below those for non-Hispanic white and Hispanic women (2).

See data tables for detailed notes.

References

1. National Research Council. Diet and health: Implications for reducing chronic disease risk. Washington: National Academy Press. 1989.
2. Looker AC, Loria CM, Carroll MD, et al. Calcium intakes of Mexican Americans, Cubans, Puerto Ricans, and non-Hispanics in the U.S. J Am Diet Assoc. In press.

Vitamin and Mineral Supplement Use Among Adults

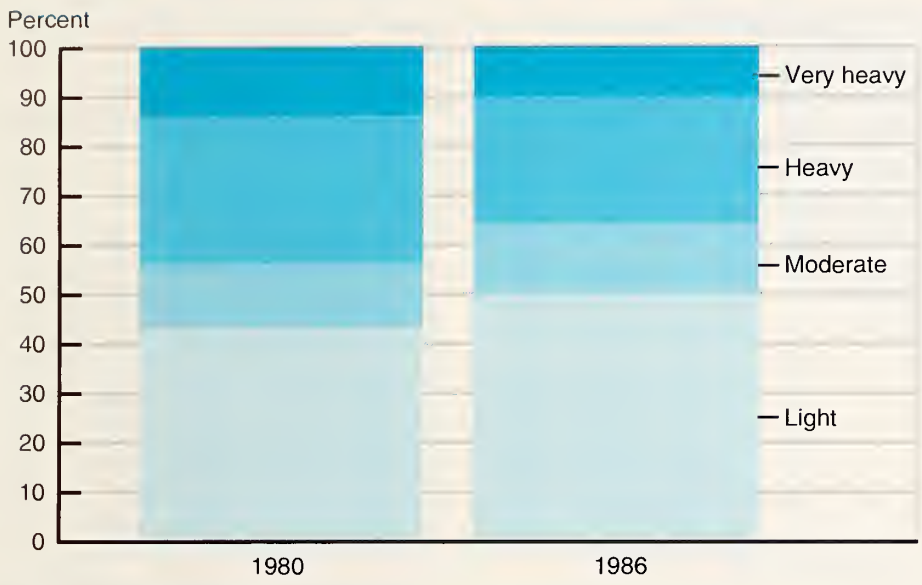

Figure 58. Mean daily use of vitamin and mineral supplements by males 18 years of age and over who reported taking supplements, 1980 and 1986

SOURCE: Food and Drug Administration, Consumer Studies Branch, Vitamin and Mineral Supplement Use Survey, 1980 †, and Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, National Health Interview Survey, 1986 †.

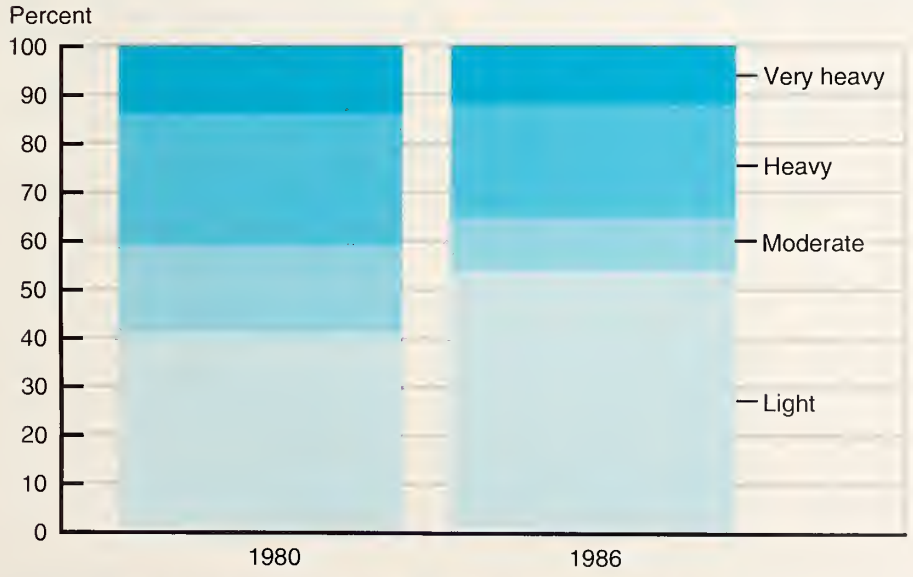

Figure 59. Mean daily use of vitamin and mineral supplements by females 18 years of age and over who reported taking supplements, 1980 and 1986

SOURCE: Food and Drug Administration, Consumer Studies Branch, Vitamin and Mineral Supplement Use Survey, 1980 †, and Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, National Health Interview Survey, 1986 †.

The 1986 National Health Interview Survey included questions and procedures on vitamin and mineral supplement use that were similar to those used in the 1980 Food and Drug Administration Vitamin and Mineral Supplement Use Survey. These similarities allow comparisons of the data to be made.

Factor analysis indicated there were two product-type groups: (a) broad-spectrum supplements that contained a number of vitamins and/or minerals and averaged 101 percent of the U.S. Recommended Daily Allowance (USRDA); and (b) specialized supplements that contained from one to three nutrients and averaged 723 percent of the USRDA.

Supplement usage styles were defined based on the two product-type groups. Light users reported below average use of both broad-spectrum and specialized supplements; moderate users reported above average use of broad-spectrum supplements and below average use of specialized supplements; heavy users reported above average use of specialized supplements and below average use of broad-spectrum supplements; and very heavy users reported above average use of both broad-spectrum and specialized supplements.

- More than one in three American adults 18 years of age and over reported using supplements in 1980 and 1986, but the overall percentage of supplement use declined slightly in this time period. Light supplement use increased between 1980 and 1986, while heavy and very heavy use decreased (figures 58 and 59). Moderate use decreased among females (1).

Reference

1. Bender MM, Levy AS, Schucker RE, et al. Trends in prevalence and magnitude of vitamin and mineral supplement usage and correlation with health status. J Am Diet Assoc 92(9):1096–101. 1992.

Vitamin and Mineral Supplement Use by the Elderly

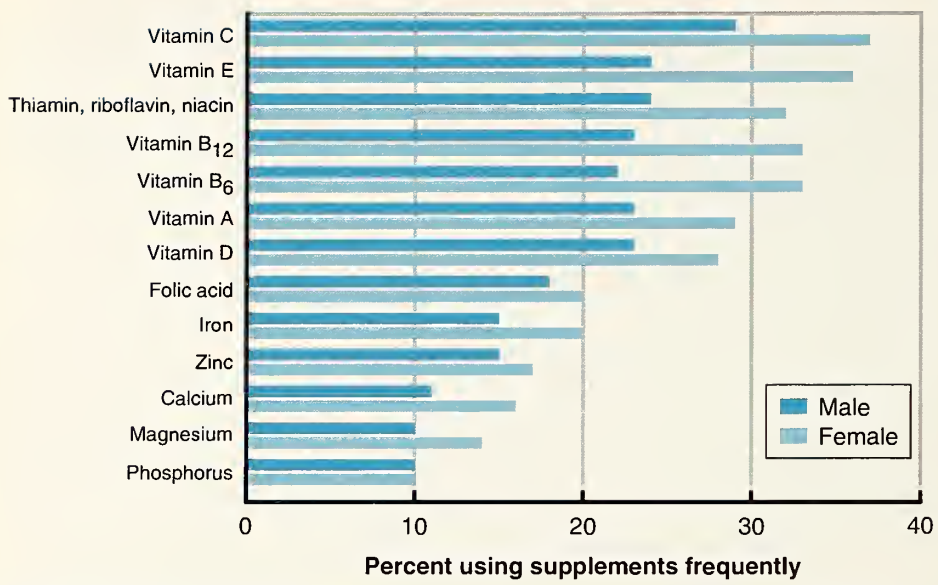

Figure 60. Frequent nutrient supplement use among Boston elders 60 years of age and over, 1981–84

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Human Nutrition Research Center on Aging at Tufts University, Boston Nutritional Status Survey, 1981–84 ¶.

With the growth of the elderly population in the United States, there has been increasing interest in the nutritional status and, consequently, the nutrient intake of persons over 60 years of age. Of particular interest are the potential effects of nutrient supplement use by the elderly. Estimates of the prevalence of nutrient supplementation in the elderly range from 30 to 70 percent.

- A 1981–84 study of noninstitutionalized elderly people in the Boston area indicated that 45 percent of the males and 55 percent of the females used nutrient supplements in the month before the survey, with 80 percent of this use on a daily basis. Nutrient supplements included nutrients taken as single supplements or combination products. Figure 60 shows the prevalence of frequent nutrient supplement use among those surveyed. Vitamin C had the highest prevalence of frequent use for males and females, at 29 and 37 percent, respectively. The lowest prevalence of frequent use was recorded for phosphorus and magnesium among males, and for phosphorus among females (1).

See data tables for detailed notes.

Reference

1. Hartz SC, Blumberg J. Use of vitamin and mineral supplements by the elderly. Clin Nutr 5(3):130–6. 1986.

Food Access and Expenditures

Domestic Food Assistance Programs: Participation and Expenditures

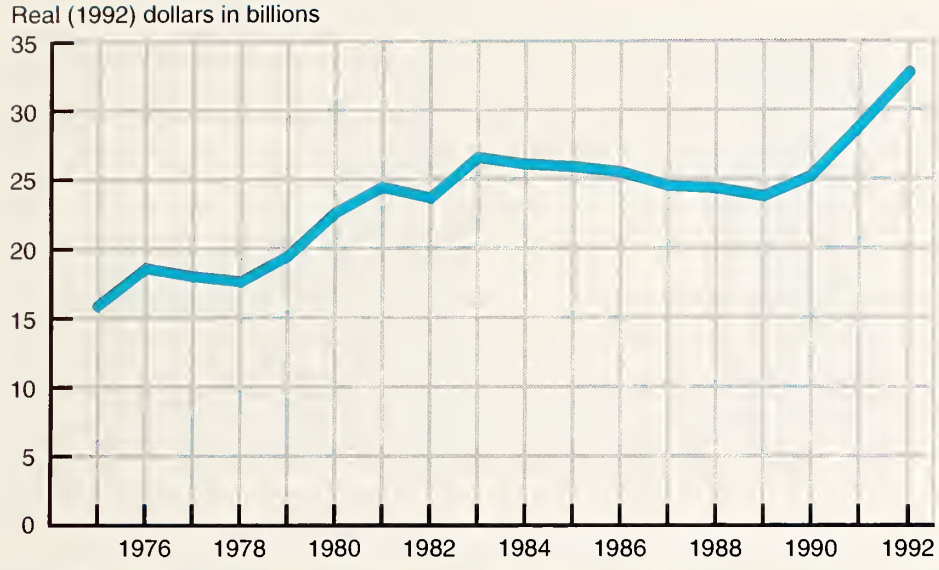

Figure 61. Federal expenditures, in real 1992 dollars, spent on food assistance and nutrition education programs, 1975–92

SOURCE: U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis and Evaluation †.

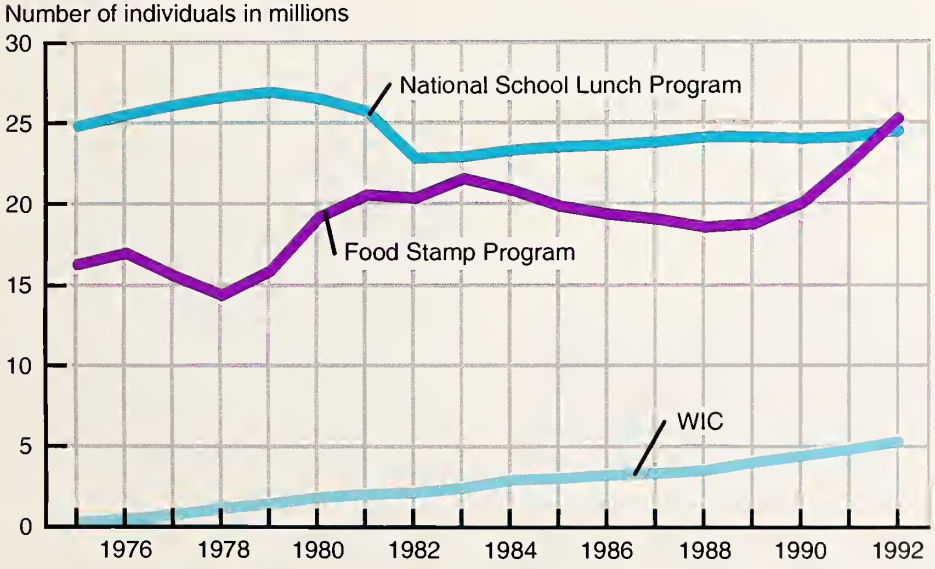

Figure 62. Average monthly participation in the three largest domestic food assistance programs, 1975–92

SOURCE: U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis and Evaluation †.

The Food and Nutrition Service (FNS) of the U.S. Department of Agriculture administers 15 domestic food assistance and nutrition education programs, at an annual cost for fiscal year 1992 of 33 billion dollars. These programs include the Food Stamp Program, the National School Lunch Program, and the Special Supplemental Food Program for Women, Infants, and Children (WIC).

- About one in six Americans receive benefits from one or more of the domestic food assistance programs at some point during a year (1). On average, 10 percent of the U.S. population participated in the Food Stamp Program each month during 1992. In the 97 percent of public schools that offer the National School Lunch Program, 58 percent of the students receive a subsidized school meal on the average school day. Forty percent of all U.S. families with infants under 12 months of age receive benefits through the WIC Program (2).
- Figure 61 shows the growth in Federal expenditures, in real 1992 dollars, spent on the FNS food assistance and nutrition education programs since 1975.
- Figure 62 shows the participation by individuals from 1975 to 1992 in the three largest domestic food assistance programs: the Food Stamp Program, the National School Lunch Program, and the WIC Program. These programs account for almost 90 percent of all domestic food assistance expenditures (2,3).

See data tables for detailed notes.

References

1. U.S. Department of Agriculture and U.S Department of Health and Human Services. International Conference on Nutrition Paper Submitted by the United States of America. April, 1992.
2. Food and Nutrition Service. Unpublished data. Washington: U.S Department of Agriculture. 1993.
3. Food and Nutrition Service. Annual historical review of FNS programs, fiscal year 1989. Washington. U.S Department of Agriculture. 1991

Food Expenditures

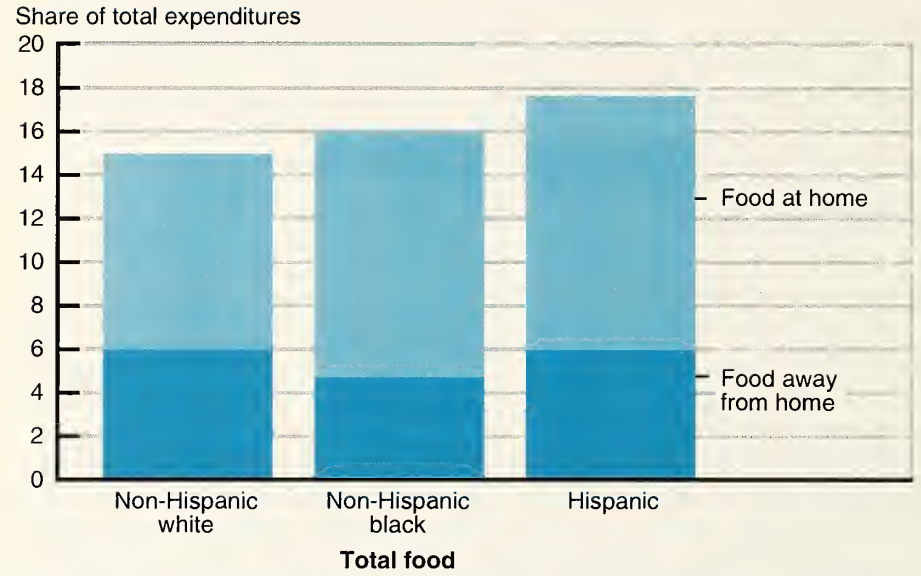

Figure 63. Food as a share of total expenditures, by race and ethnicity, 1990–91

SOURCE: Department of Labor, Bureau of Labor Statistics, Division of Consumer Expenditures, Consumer Expenditure Survey †.

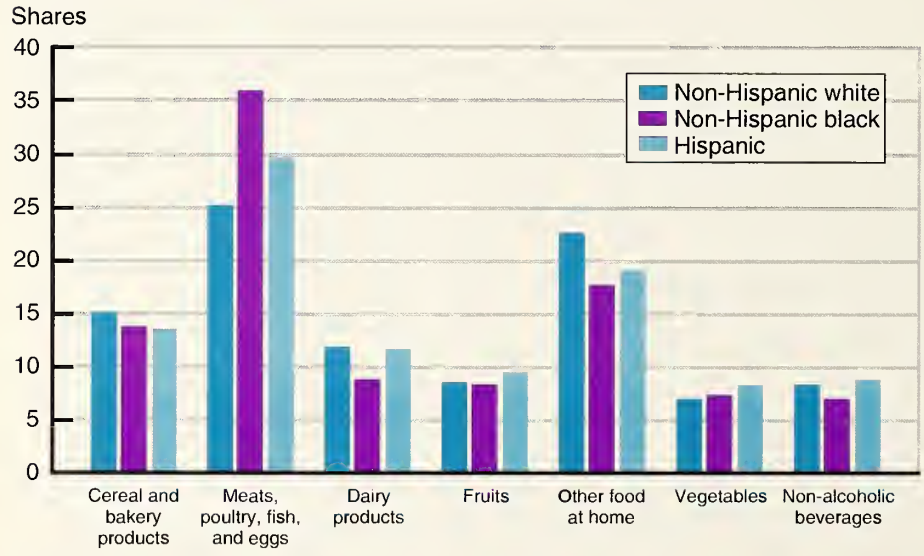

Figure 64. Shares of food at home, by race and ethnicity, 1990–91

SOURCE: Department of Labor, Bureau of Labor Statistics, Division of Consumer Expenditures, Consumer Expenditure Survey †.

The Consumer Expenditure Survey provides information on expenditures, income, and family characteristics for Hispanics, non-Hispanic blacks, and non-Hispanic whites. Expenditure patterns of consumer units are shown as shares spent on various expenditure components. The shares may be influenced by the income, tastes and preferences, and consumer unit characteristics of the different groups.

- During 1990–91 non-Hispanic whites had the highest average annual income, approximately $33,434, compared with $25,686 for Hispanics and $22,046 for non-Hispanic blacks. One might expect those households with the lowest income to devote the largest share of total expenditures to necessities such as food. However, the average size of Hispanic consumer units (3.5 persons) is larger than that of non-Hispanic blacks (2.8 persons), and as a result, Hispanics devoted a larger share of their total expenditures to food (figure 63). Non-Hispanic whites spent a larger share of their overall food expenditures on food away from home than the other groups.
- Figure 64 shows shares spent on components of food at home. The shares spent by the three groups are relatively equal for all types of food except for meat, poultry, fish, and eggs. Non-Hispanic blacks spent 37 percent of their total food at home budget on meat, poultry, fish, and eggs, compared with 29 percent by Hispanics and 26 percent by non-Hispanic whites. These products are more expensive and consumed a larger share of non-Hispanic black's total expenditures than the groups with higher incomes.

See data tables for detailed notes.

Household Food Consumption and Expenditures

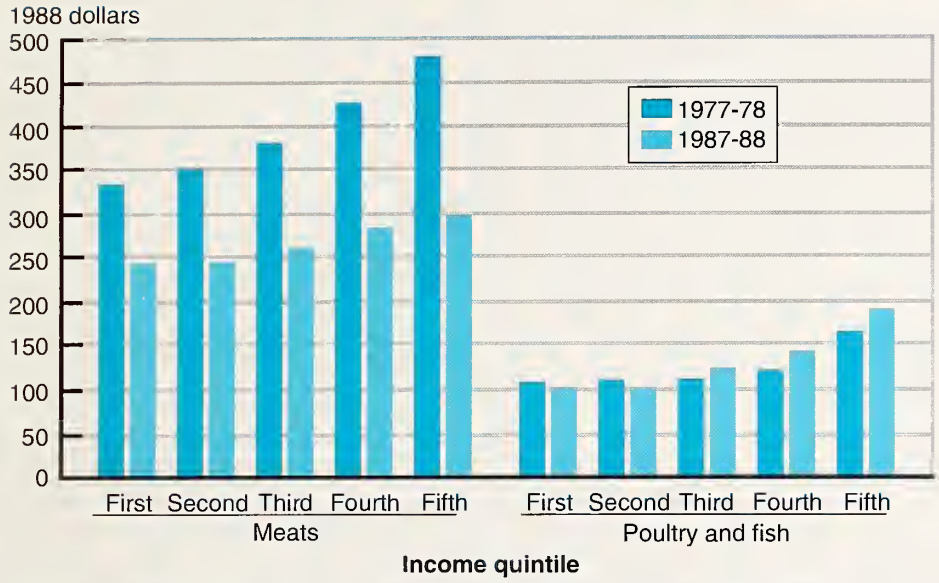

Figure 65. Annual money value of meats, poultry, and fish purchased by households, by income level, 1977–78 and 1987–88

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division, Nationwide Food Consumption Survey, 1977–78 and 1987–88 †.

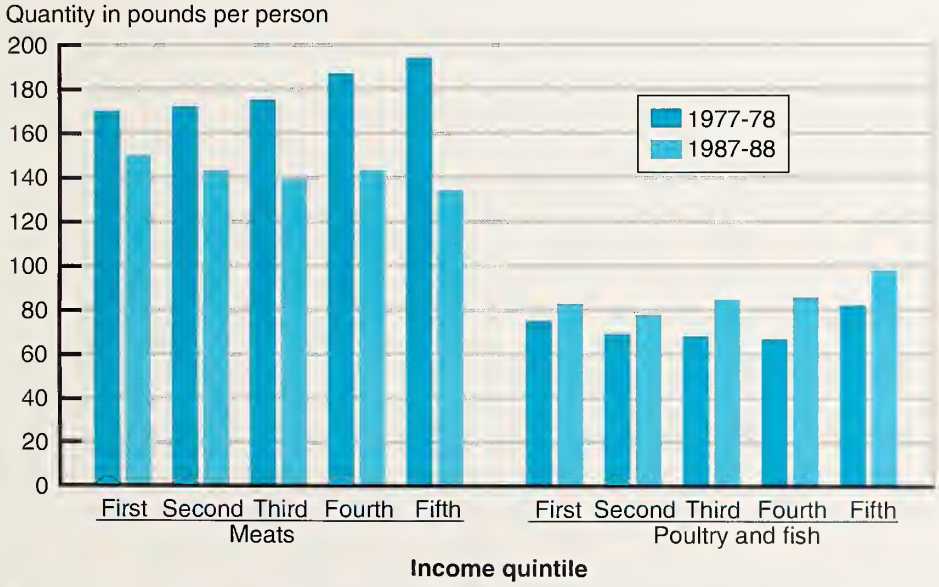

Figure 66. Annual household use of meats, poultry, and fish, by income level, 1977–78 and 1987–88

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division, Nationwide Food Consumption Survey, 1977–78 and 1987–88 †.

- Americans have reduced their intakes of red meats such as beef and lamb, and increased their intakes of fish and poultry. Annual consumption of red meat decreased for all households, from an average of 181 pounds per person in 1977–78 to 143 pounds in 1987–88. At the same time the consumption of poultry and fish increased from an average of 72 pounds per person in 1977–78 to 86 pounds in 1987–88.
- Inflation-adjusted spending on red meat decreased from an average of 393 dollars per year in 1977–78 to 268 dollars in 1987–88, while spending on fish and poultry increased from an average of 122 dollars per year in 1977–78 to 132 dollars in 1987–88 (figure 65).
- Households with the highest income decreased their consumption of red meat 31 percent from 1977–78 to 1987–88, but households with the lowest income decreased their consumption only 11 percent (figure 66). Higher income households tended to spend more on red meat—as much as 298 dollars in 1987–88—while the lowest income households spent only 244 dollars. This trend suggests that higher income households purchased more expensive cuts of meats.
- Households with higher incomes increased their consumption of poultry and fish by 20 percent between 1977–78 and 1987–88, but households with lower incomes increased their consumption by only 11 percent. At the same time higher income households increased their spending on poultry and fish about 16 percent, while the lower income households decreased spending by as much as 5 percent. This suggests that higher income households purchased more expensive or more convenient forms of fish and poultry products, for example, cut-up chickens compared with whole chickens.

See data tables for detailed notes.

The Thrifty Food Plan

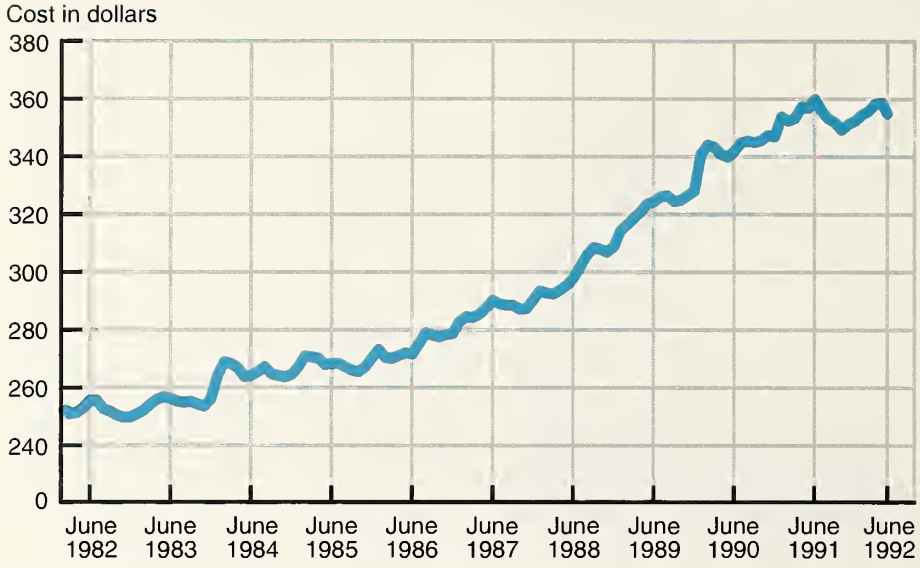

Figure 67. Changes in the monthly cost of the Thrifty Food Plan, 1982–92

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service ‡.

The U.S. Department of Agriculture's Human Nutrition Information Service has prepared guides for selecting nutritious diets at different levels of cost for over 50 years. The food plans are sets of nutritious diets at four cost levels: thrifty, low-cost, moderate-cost, and liberal. These plans specify the quantities of different types of foods (in 31 food groups) that households might purchase to provide nutritious diets to household members. The Thrifty Food Plan relies more heavily on the food groups that are the most economical sources of nutrients. The cost of the Thrifty Food Plan for June of each year is used as the basis for food stamp allotments in the subsequent year.

- As shown in figure 67, the cost of the Thrifty Food Plan has risen steadily since 1982, and was 44 percent higher in April 1992 than in January 1982. With the exception of a revision in 1983 (which replaced the previous plan with one of the same level of cost), no changes in the composition of the food plan have been made, indicating that the changes in cost are due solely to changes in food prices.

  See data tables for detailed notes.

Section III.

Knowledge, Attitudes, and Behavior Assessments

Awareness of Diet-Health Relationships

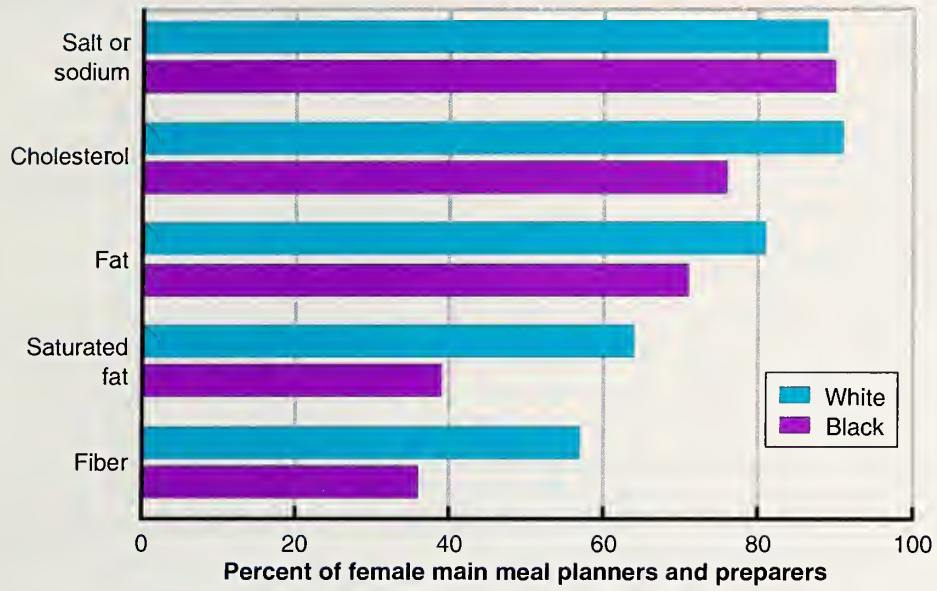

Figure 68. Awareness of health problems related to dietary components, by race, 1989

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Diet and Health Knowledge Survey, 1989 †.

Four of the 10 leading causes of death are diet-related: coronary heart disease, certain cancers, strokes, and diabetes (1). People who are aware of diet-health relationships may be more motivated than others to change their eating habits and to follow dietary guidance. In the 1989 Diet and Health Knowledge Survey, main meal planners and preparers were asked if they had heard about any health problems that might be related to eating various nutrients or dietary components. Figure 68 shows the percent of female meal planners and preparers who said they had heard of health problems related to how much salt or sodium, cholesterol, fat, saturated fat, and fiber a person eats.

- Most black and most white female respondents said they had heard of health problems related to salt or sodium intakes. Many had also heard of health problems related to cholesterol and fat intakes. Fewer were aware of problems related to intakes of saturated fat and fiber.
- Black and white women were equally likely to say that people's intakes of salt or sodium could affect their health. In contrast, more white women than black women said that people's intakes of cholesterol, fat, saturated fat, and fiber could affect their health.

Reference

1. National Center for Health Statistics. Births, marriages, divorces, and deaths for October 1992. Monthly vital statistics report; vol 41 no 10. Hyattsville, Maryland: Public Health Service. 1993.

Awareness of Specific Diet-Disease Links

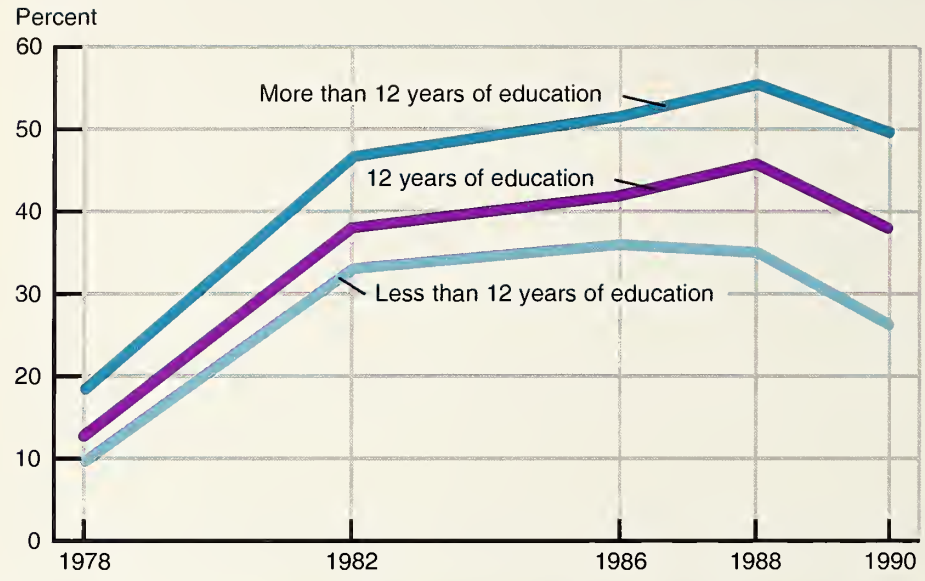

Figure 69. Trends in awareness of a link between sodium intakes and hypertension, by educational level, 1978–90

SOURCE: Food and Drug Administration, Consumer Studies Branch, Health and Diet Survey †.

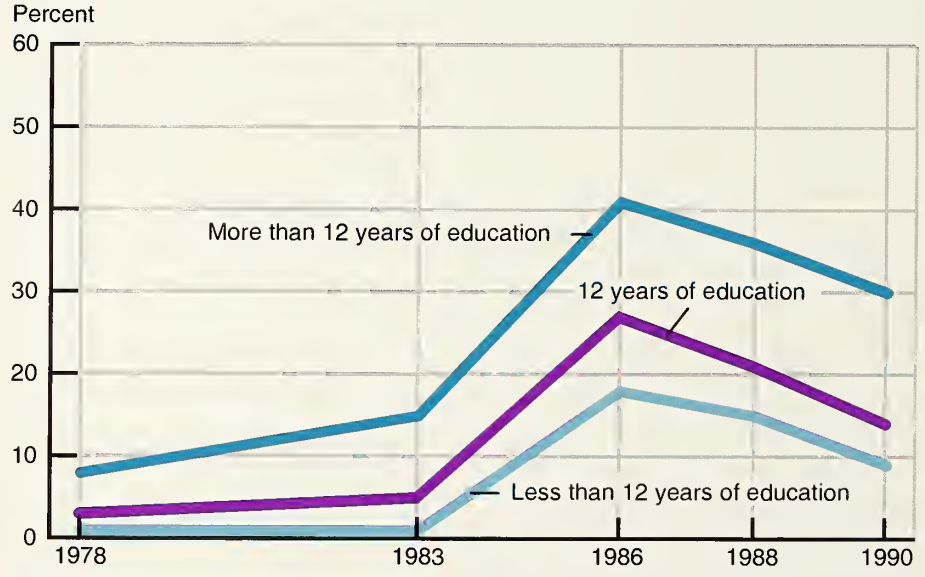

Figure 70. Trends in awareness of a link between fiber intakes and cancer, by educational level, 1978–90

SOURCE: Food and Drug Administration, Consumer Studies Branch, Health and Diet Survey †.

The biennial Health and Diet Survey monitors the population's perceptions of relationships between diet and health, and provides trend information on key relationships—such as sodium and hypertension, and fiber and cancer—that have been the subject of large-scale public information campaigns.

- Survey results showed that public awareness of the link between sodium consumption and hypertension was low before the joint 1981 Food and Drug Administration and National Heart, Lung and Blood Institute sodium initiative (figure 69). This initiative sought to educate the public about sodium and hypertension, and encourage manufacturers to voluntarily provide sodium content information on nutrition labels. The impact of these efforts was apparent in the significant increase in awareness that occurred between 1978 and 1982 (1).
- A similar pattern of awareness was apparent for fiber and cancer prevention (figure 70). Few Americans were aware of this relationship before the National Cancer Prevention Awareness Program initiated in 1984 by the National Cancer Institute (2).
- Awareness of these particular diet and disease relationships peaked in the mid to late 1980s, and increased as educational level increased. The trends in awareness were similar at each educational level.

See data tables for detailed notes.

References

1. Levy AS, Heimbach JT. Recent public education efforts about health and diet. Unpublished report. Washington: Food and Drug Administration. 1989.
2. Levy AS, Stokes RC. Effects of a health promotion advertising campaign on sales of ready-to-eat cereal. Public Health Reports, 102:398–403. 1987.

Perceived Importance of Dietary Guidance on Fat and Cholesterol

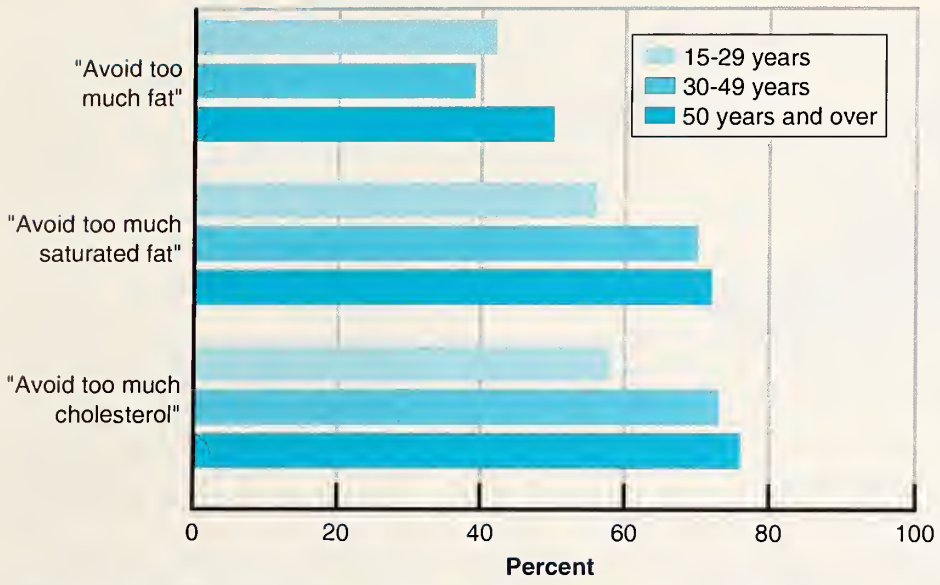

Figure 71. Percent of female main meal planners and preparers who rated dietary guidance as highly important to them, by age, 1989

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Diet and Health Knowledge Survey, 1989 †.

People who believe in advice about healthy diets may be more likely to put dietary guidance into practice. In the 1989 Diet and Health Knowledge Survey main meal planners and preparers were asked to use a six-point scale to indicate how important dietary guidance on fat, saturated fat, and cholesterol was to them personally. Figure 71 shows the percent of main meal planners and preparers who rated this guidance as highly important to them personally (represented by the top two points on the rating scale).

- Many women said that avoiding too much fat, saturated fat, and cholesterol was important to them personally. All age groups rated advice about saturated fat and cholesterol as somewhat more important than advice about total fat.
- Women 50 years of age and over were more likely than women of other age groups to believe that avoiding too much fat was highly important to them. Women 30 years of age and over were more likely than younger women to rate advice about saturated fat and cholesterol as highly important to them.

Use of Selected Nutrition-Related Medical Services

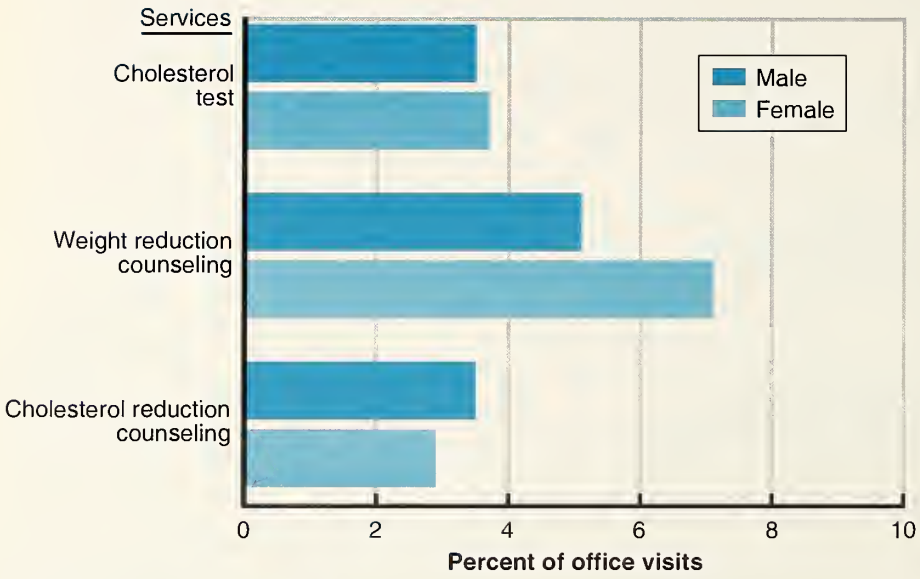

Figure 72. Visits to non-Federal office-based physicians, by selected nutrition-related services and patient's sex, 1989–90

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Care Statistics, National Ambulatory Medical Care Survey †.

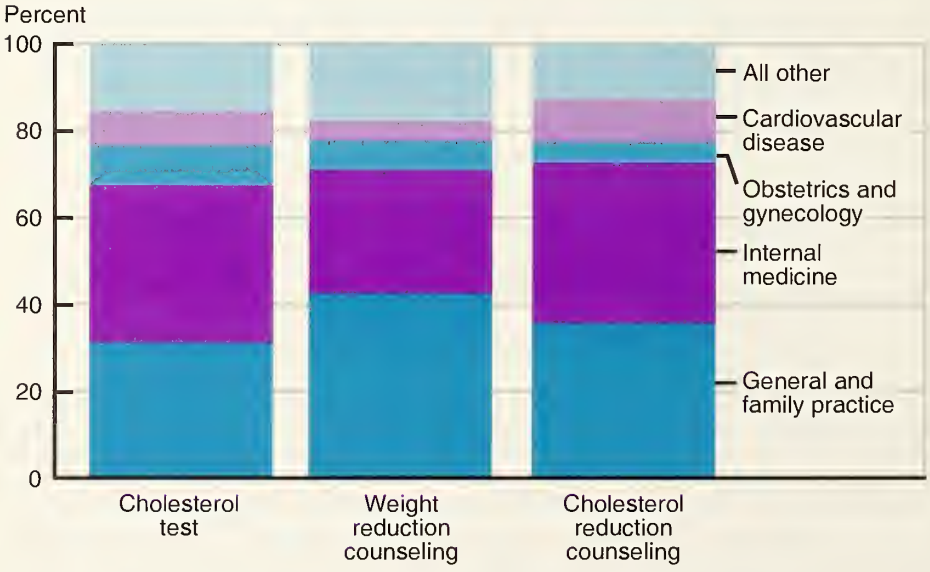

Figure 73. Visits to non-Federal office-based physicians, by selected nutrition-related services and physician specialty, 1989–90

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Care Statistics, National Ambulatory Medical Care Survey †.

Data from the National Ambulatory Medical Care Survey indicate that during the 2-year period 1989–90 there were approximately 1.4 billion office visits to non-Federal, office-based physicians in the United States. As part of this survey, information is collected on the use of selected medical services that may be nutrition related.

- In almost 4 percent of the visits, physicians ordered or provided a test to measure the patient's cholesterol level. This percentage did not differ by the patient's sex (figure 72).
- The proportion of visits by females for weight reduction counseling was higher than that for males, although the proportion of visits by males for cholesterol reduction counseling was higher than that for females.
- Physicians provided counseling for weight reduction in 6 percent of all office visits and counseling for cholesterol reduction in 3 percent of all office visits.
- Approximately two-thirds of the visits that included cholesterol measurement were made to physicians specializing in general and family practice or internal medicine (figure 73).
- Physicians specializing in general and family practice or internal medicine accounted for approximately 70 percent of the visits that included counseling for weight or cholesterol reduction (1).

Reference

1. National Center for Health Statistics. Unpublished data from the 1989 and 1990 National Ambulatory Medical Care Survey. National Center for Health Statistics. Hyattsville, Maryland. 1992.

Sodium-Reducing and Cholesterol-Lowering Diets

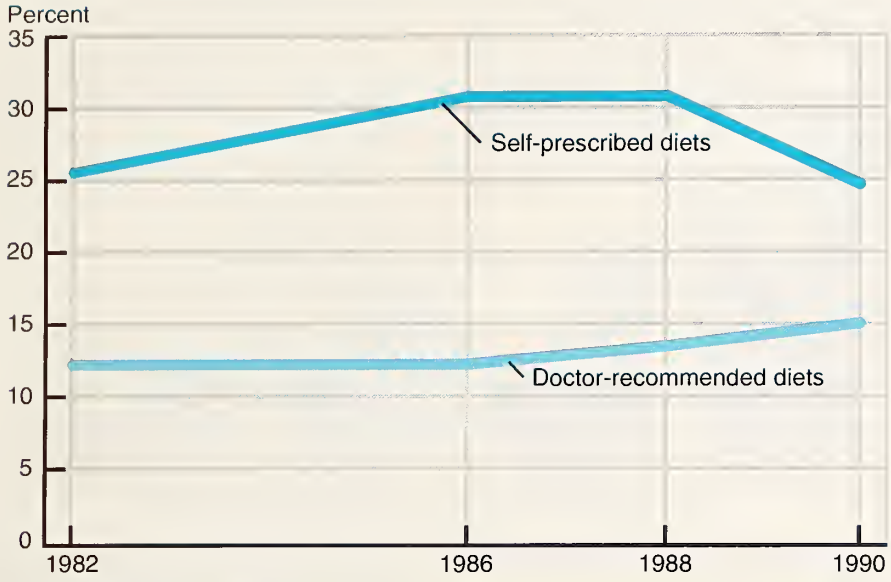

Figure 74. Trends in sodium avoidance: Self-prescribed and doctor-recommended diets, 1982–90

SOURCE: Food and Drug Administration, Consumer Studies Branch, Health and Diet Survey †.

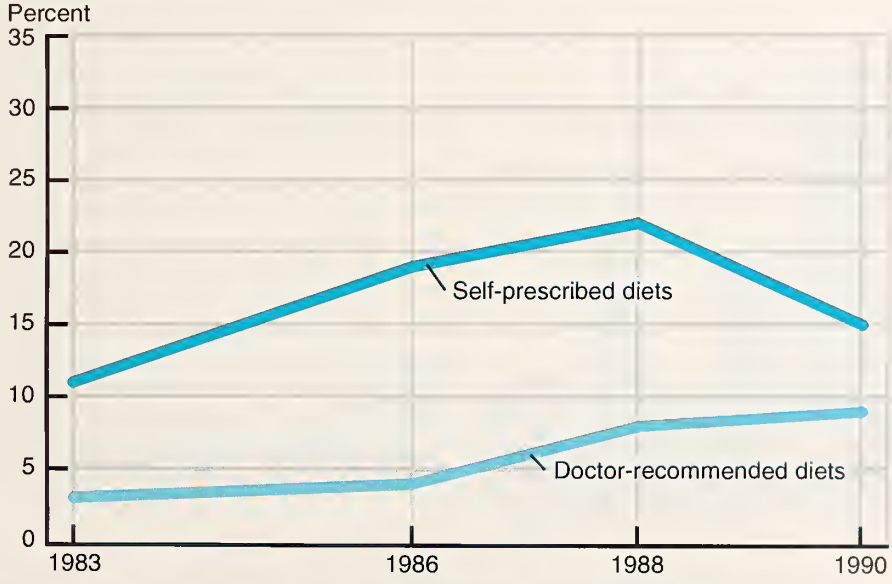

Figure 75. Trends in dieting to lower blood cholesterol: Self-prescribed and doctor-recommended diets, 1983–90

SOURCE: Food and Drug Administration, Consumer Studies Branch, Health and Diet Survey †.

The biennial Health and Diet Survey provides trend information on self-reported dieting to reduce sodium intakes and to lower blood cholesterol for both doctor-recommended diets and diets that are self-prescribed (1).

- The data indicated a gradual upward trend in doctor-recommended dieting for both low sodium (+3 percent) and cholesterol-lowering (+6 percent) diets between 1982 and 1990, narrowing the gap between doctor-recommended diets and those that were self-initiated. Self-prescribed dieting to lower blood cholesterol was less prevalent than self-prescribed dieting to lower sodium intakes.
- Overall, the data indicated that about 40 percent of the population was following a sodium-restricted diet between 1982 and 1990. However, the proportion of Americans avoiding sodium on their own initiative fell for the first time in 1990 (figure 74).
- Both self-prescribed and doctor-recommended dieting to lower blood cholesterol rose steadily between 1983 and 1988, but like sodium avoidance, self-prescribed dieting fell in 1990 (figure 75).

Reference

1. Levy AS. What Americans know about diet and health: Trends from the 1979–88 FDA Health and Diet Surveys. Paper presented at the 1990 Journalists' Conference, June 25. Washington. 1990.

Nutrition and Cancer Prevention Knowledge

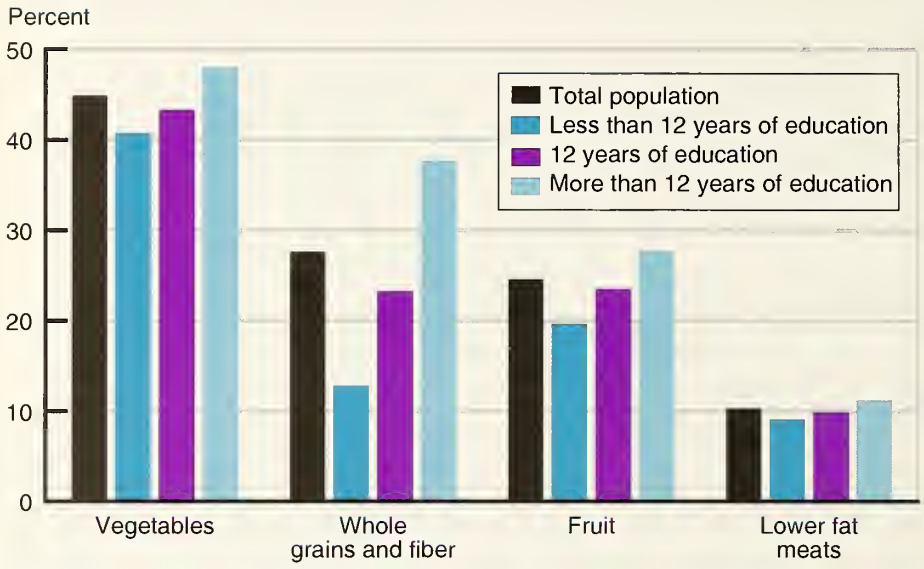

Figure 76. Foods adults believe they should eat or drink more of to help prevent cancer, for the total population and by educational level, 1987

SOURCE: National Institutes of Health, National Cancer Institute, Division of Cancer Prevention and Control, National Health Interview Survey Cancer Risk Factors Supplement (Cancer Control), 1987 †.

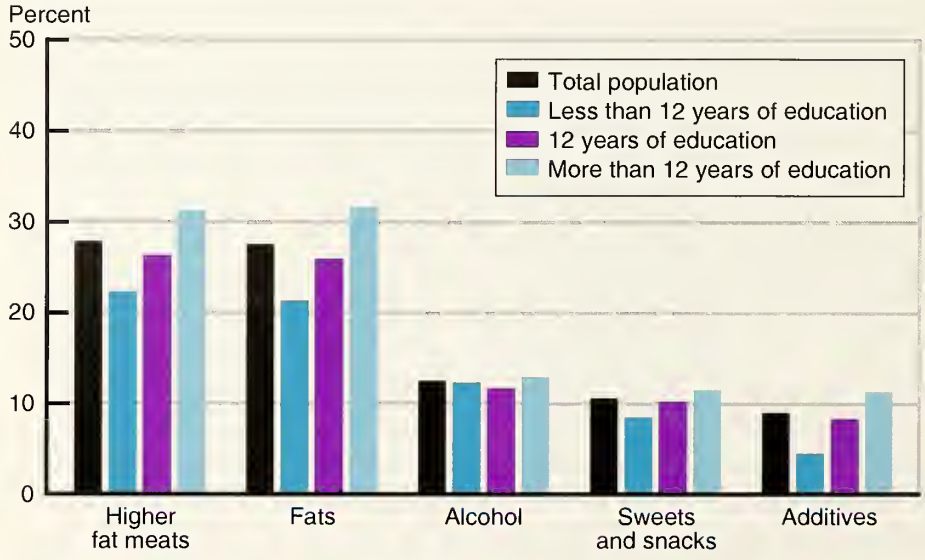

Figure 77. Foods adults believe they should eat or drink less of to help prevent cancer, for the total population and by educational level, 1987

SOURCE: National Institutes of Health, National Cancer Institute, Division of Cancer Prevention and Control, National Health Interview Survey Cancer Risk Factors Supplement (Cancer Control), 1987 †.

Cancer is the second leading cause of death in the United States (1). It has been estimated that 35 percent of all cancer deaths are related to diet (2).

- Data from the 1987 National Health Interview Survey Cancer Risk Factors Supplement (3) show that when Americans were asked what foods to eat or drink more of to help prevent cancer, the most frequently mentioned food group was vegetables, followed by whole grains or fiber, fruit, and lower fat meats (figure 76).
- When asked what foods to eat or drink less of to help prevent cancer, the most frequently mentioned food group was higher-fat meats, followed by fats, alcohol, and sweets or snacks. Food additives were also frequently mentioned (figure 77).
- Knowledge that eating more whole grains and fiber and less fat could help prevent cancer increased among Americans as educational level increased.

References

1. National Center for Health Statistics. Births, marriages, divorces, and deaths for October 1992. Monthly vital statistics report; vol 41 no 10. Hyattsville, Maryland: Public Health Service. 1993.
2. Doll R, Peto R. The causes of cancer: Quantitative estimates of avoidable risks of cancer in the United States today. JNCI 66:1191–1308. 1981.
3. Cotugna N, Subar AF, Heimendinger J. Nutrition and cancer prevention knowledge, beliefs, attitudes, and practices: The 1987 National Health Interview Survey. J Am Diet Assoc 92(8):963–8. 1992.

Worksite Health Promotion Activities

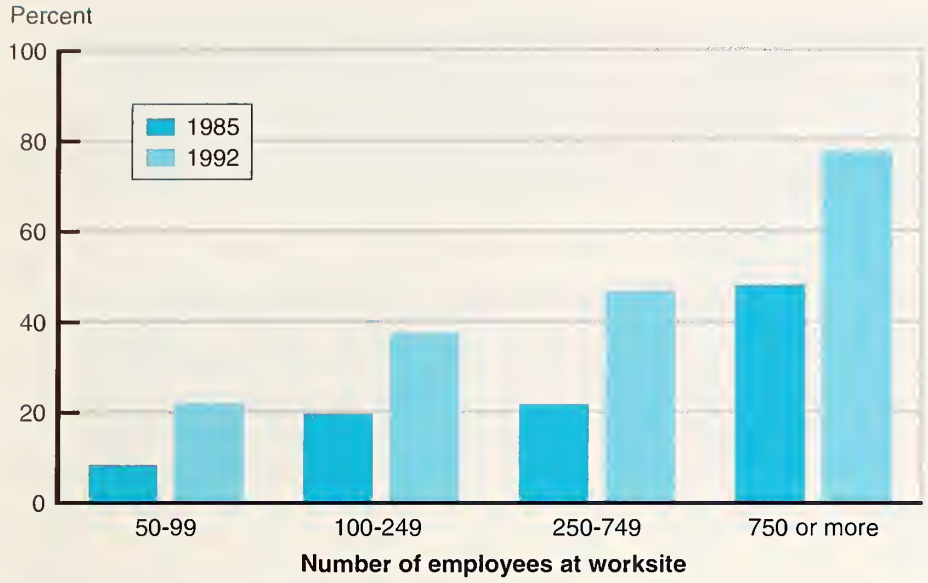

Figure 78. Percent of private worksites with 50 or more employees with nutrition education activities, by size, 1985 and 1992

SOURCE: Department of Health and Human Services, Office of Disease Prevention and Health Promotion, National Survey of Worksite Health Promotion Activities, 1985 and 1992 †.

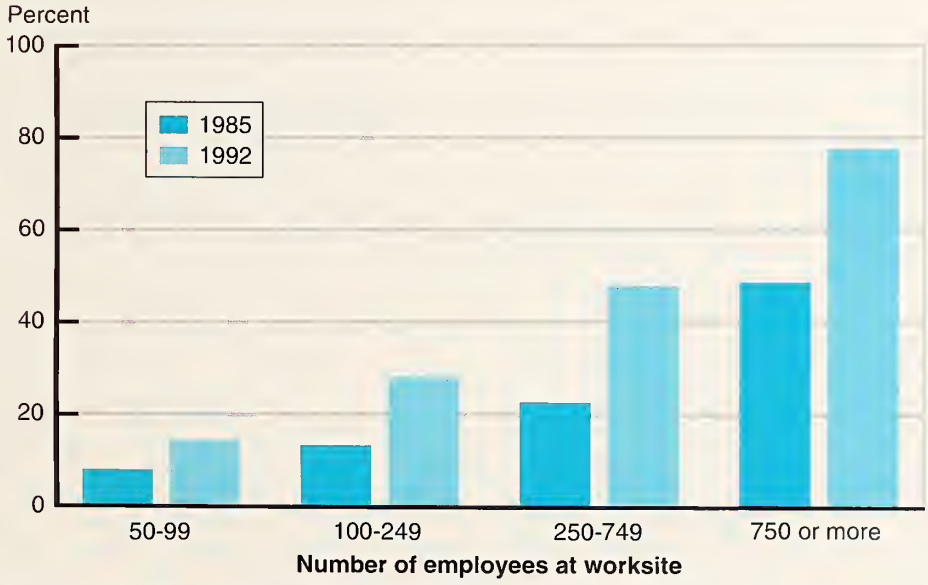

Figure 79. Percent of private worksites with 50 or more employees with weight management activities, by size, 1985 and 1992

SOURCE: Department of Health and Human Services, Office of Disease Prevention and Health Promotion, National Survey of Worksite Health Promotion Activities, 1985 and 1992 †.

Of worksites surveyed in the 1992 National Survey of Worksite Health Promotion Activities, the proportion of worksites offering information or activities related to nutrition education rose from 17 percent in 1985 to 31 percent in 1992 (figure 78). Of the latter, 18 percent offered individual counseling, 53 percent offered group classes, workshops, lectures or special events, and 94 percent offered resource materials.

- The survey additionally showed that the proportion of worksites offering information or activities to assist employees to control their weight rose from 15 percent in 1985 to 24 percent in 1992 (figure 79). Of worksites offering weight control activities in 1992, 31 percent offered individual counseling, 61 percent offered group classes, workshops, lectures or special events, and 87 percent offered resource materials.
- Overall, larger worksites (750 or more employees) were much more likely to offer nutrition education and/or weight management activities than worksites with fewer employees.

Perceptions of Body Weight Status

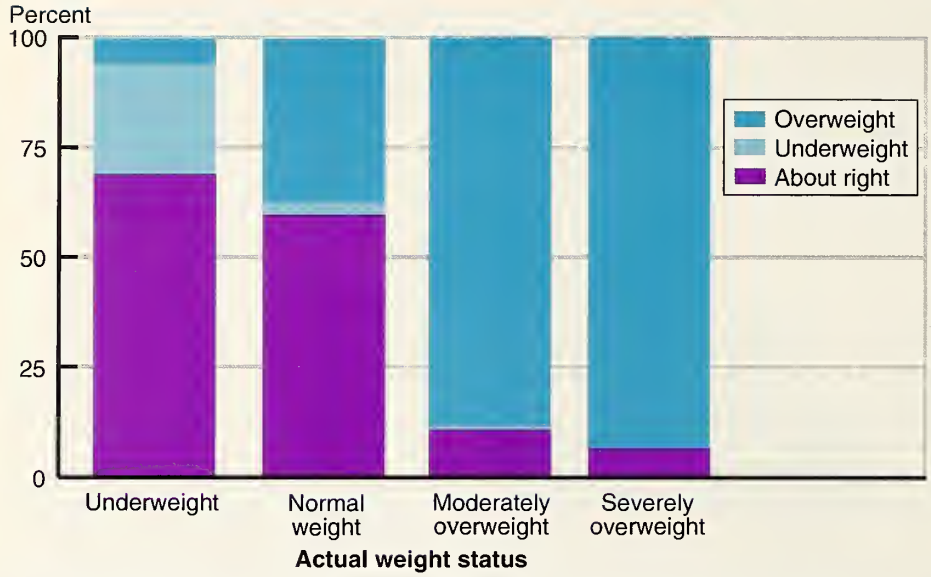

Figure 80. Perceived compared with actual weight status of female main meal planners and preparers, 1989

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Diet and Health Knowledge Survey, 1989 †, and the Continuing Survey of Food Intakes by Individuals, 1989 †.

Research on perceptions of body weight status indicates that many normal weight and even some underweight women view themselves as overweight. In the 1989 Diet and Health Knowledge Survey, female main meal planners and preparers were asked if they considered themselves to be overweight, underweight, or about right. For comparison, their actual weight status was calculated from self-reported height and weight. Figure 80 shows the misperceptions about body weight status among female main meal planners and preparers.

- Underweight women were more likely than normal weight or overweight women to perceive their weight status incorrectly. Sixty-six percent of underweight women thought they were "about right" and 7 percent thought they were "overweight."
- Among normal weight women, 37 percent thought they were "overweight."
- Most overweight women knew they were overweight, yet perceptions did not match reality for some. Eleven percent of moderately overweight and 6 percent of severely overweight women thought they were "about right."

See data tables for detailed notes.

Perceived Control Over Body Weight

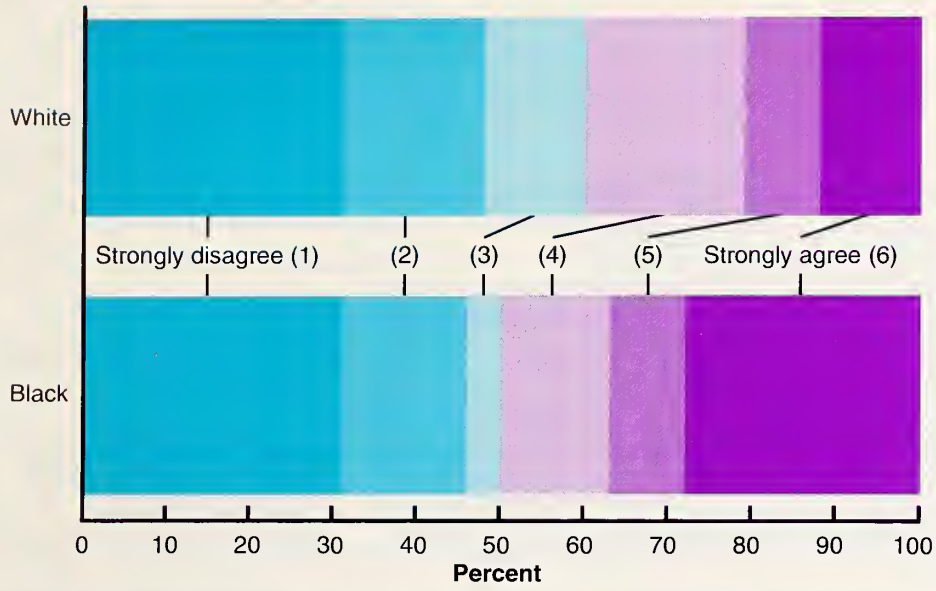

Figure 81. Female main meal planners' and preparers' agreement with a statement about ability to change body weight, by race, 1989

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Diet and Health Knowledge Survey, 1989 †.

Motivation to maintain a healthy body weight depends on beliefs about being able to control body weight. Is body weight predestined, or is change possible? In the 1989 Diet and Health Knowledge Survey, main meal planners and preparers were asked to rate on a six-point scale how much they agreed or disagreed with the statement: "Some people are born to be fat and some thin; there is not much you can do to change this."

- As shown in figure 81, a larger proportion of black women than white women believed that people have little personal control over their body weight. Fifty-one percent of black women agreed with the statement that there is not much people can do to change their body weight; 29 percent of black women strongly agreed. In contrast, 40 percent of white women agreed with the statement, and only 12 percent strongly agreed.

Body Mass Index and Leisure Time Activities

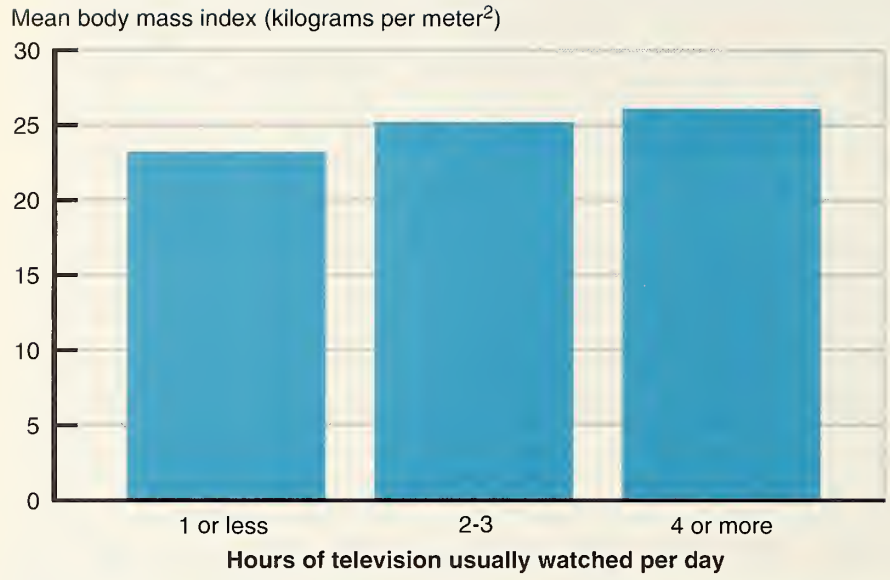

Figure 82. Body mass index of females 20–49 years of age, by hours of television usually watched per day, 1989

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989 †.

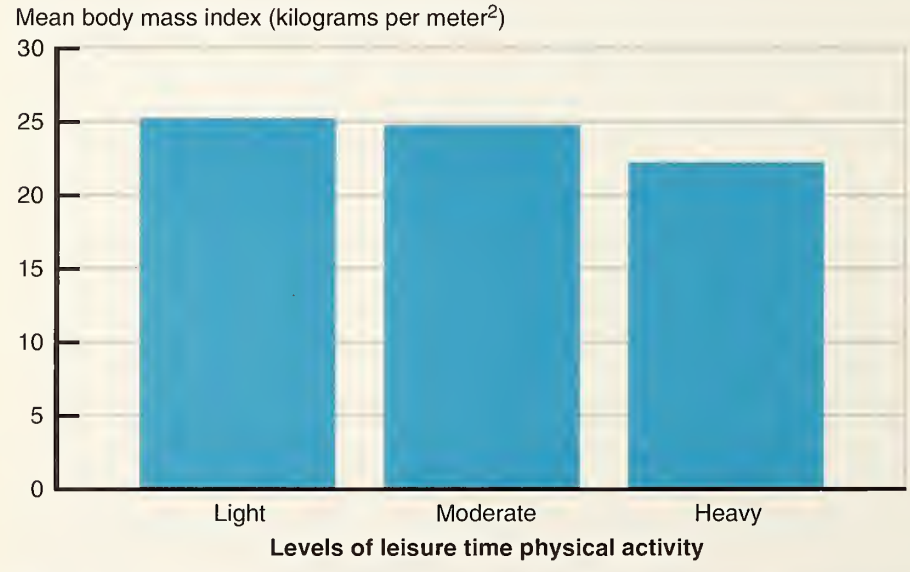

Figure 83. Body mass index of females 20–49 years of age, by leisure time activity levels, 1989

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989 †.

Measures of body mass index (BMI) are correlated with "body fatness" and are considered to be better indicators of body composition than body weight alone. BMI, an index that relates body weight to stature, is calculated as weight in kilograms per meter^2.

- Data from the 1989 Continuing Survey of Food Intakes by Individuals showed that among females 20–49 years of age, mean BMI tended to rise with the average number of hours of television watched per day (figure 82), indicating higher levels of "body fatness."
- Data on women in the same age group showed also that mean BMI was greater among women reporting "light" levels of leisure time physical activity than among women reporting "heavy" levels of physical activity (figure 83).

See data tables for detailed notes.

Leisure Time Activities and Selected Behaviors

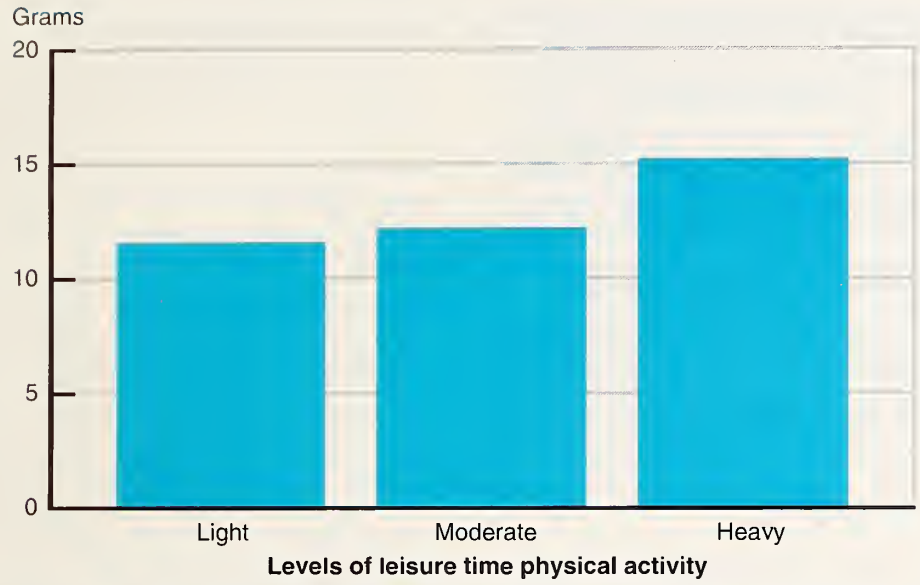

Figure 84. Mean daily intakes of total dietary fiber for females 20–49 years of age, by leisure time activity levels, 1989

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989 †.

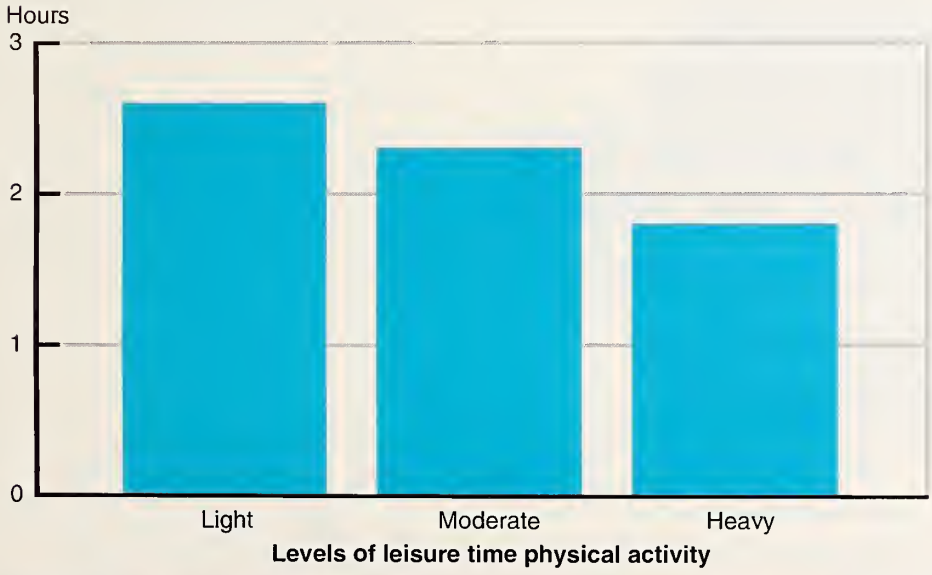

Figure 85. Hours of television usually watched per day for females 20–49 years of age, by leisure time activity levels, 1989

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989 †.

Data from the 1989 Continuing Survey of Food Intakes by Individuals showed that among females 20–49 years of age, higher levels of leisure time physical activity were associated with greater mean intakes of total dietary fiber and less time reported watching television each day.

- As shown in figure 84, women reporting "heavy" levels of leisure time physical activity had the highest mean intakes of dietary fiber per day, compared with women reporting "moderate" or "light" levels of physical activity. The differences in dietary fiber intakes were accounted for primarily by higher fiber intakes per 1,000 kilocalories of food energy among women with higher levels of physical activity.
- Those women reporting "heavy" levels of leisure time physical activity also reported less average hours watching television each day, as shown in figure 85. Women with "heavy" levels of leisure time physical activity watched an average of less than 2 hours of television each day, compared with women reporting "light" levels of physical activity, who reported watching an average of more than two and one-half hours of television each day.

See data tables for detailed notes.

Evaluation of Food Label Formats

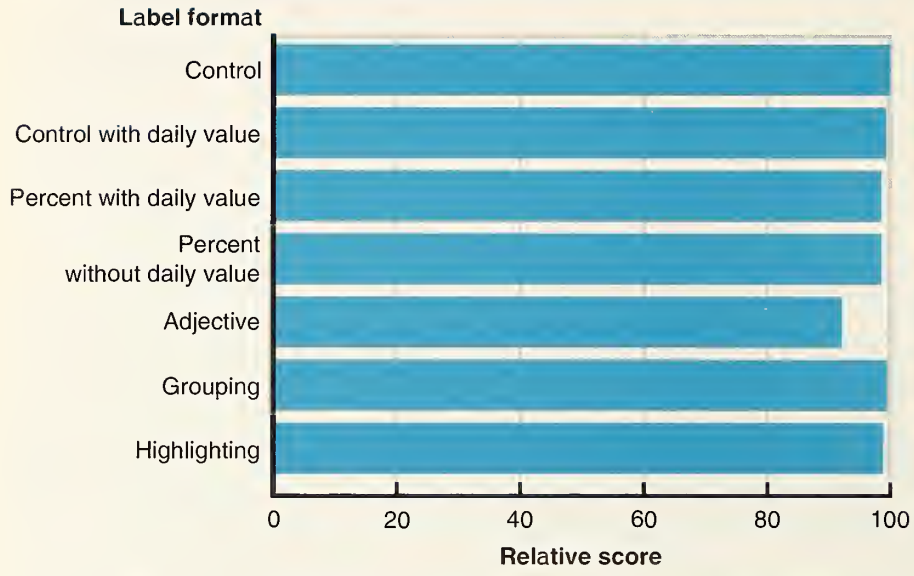

Figure 86. Comparing two products to identify differences in nutrient content using a variety of food label formats, 1992

SOURCE: Food and Drug Administration, Consumer Studies Branch, Food Label Format Study 2, 1991 ‡.

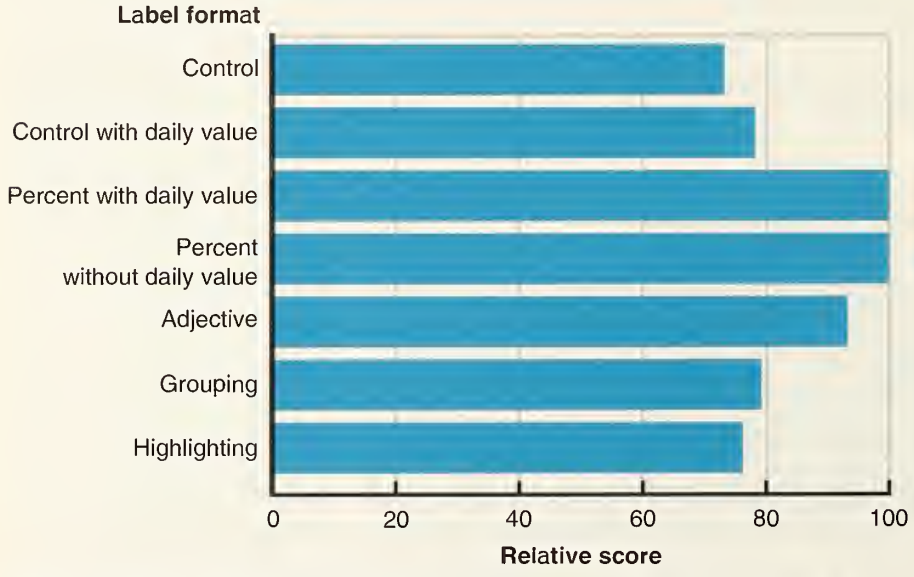

Figure 87. Ability to determine which nutrients to eat more of or less of assuming the person has already eaten three servings of the food, 1992

SOURCE: Food and Drug Administration, Consumer Studies Branch, Food Label Format Study 2, 1991 ‡.

To aid in the development of food label format regulations, studies were conducted to test consumer competencies using proposed nutrition label formats (1). In one study, seven possible label formats were tested; these seven formats are depicted on the following pages. The control format provided the standard for judging the effectiveness of the six other formats.

Two tasks, product comparison and dietary management, demonstrated consumers' competencies in the use of these food label formats.

- The **product comparison task** required participants to look at two food labels and identify differences in nutrient content. This task is comparable to the use of food labels to compare products or brands. The majority of participants accurately identified most product differences in less than 1 minute. Participant performance was poorest with the Adjective Format (figure 86).
- The **dietary management task** required participants to assume three servings of a specified food had been eaten, and then identify nutrients they needed to eat more of or less of in a day. This task measures how well the format helps consumers understand the significance of nutrition information in the context of their total daily diet. Subjects performed best with percent declaration and adjective formats (figure 87).

See data tables for detailed notes.

Reference

1. Levy AS, Fein SB, Schucker RE. Evaluation of nutrition label formats: FDA Study 2. Unpublished data from the Food and Drug Administration, Consumer Studies Branch. 1992.

FROZEN DESSERT

INGREDIENTS: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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NUTRITION INFORMATION PER SERVING

Serving Size: 6 fl oz (156g) ¾ cup
Servings per Container: 2½

Calories	150
Calories from fat	45

	AMOUNT
Fat	5 g
Saturated fat	0 g
Cholesterol	0 mg
Sodium	20 mg
Carbohydrates	27 g
Fiber	0 g
Protein	2 g

PERCENT OF DAILY VALUE	
Vitamin A	2
Vitamin C	2
Calcium	20
Iron	2

† As part of a 2,350 calorie diet

Control: a modified version of the current format showing nutrients required under the new legislation

FROZEN VEGETABLES
IN SAUCE

NUTRITION INFORMATION PER SERVING

Serving Size: 4½ oz (126g) ½ cup
Servings per container: 2

Calories	80
Calories from fat	20

	AMOUNT	DAILY VALUE (DV) †
Fat	2 g	75 g or less
Saturated fat	0 g	25 g or less
Cholesterol	0 mg	300 mg or less
Sodium	440 mg	2,400 mg or less
Carbohydrates	14 g	325 g or more
Fiber	3 g	25 g
Protein	4 g	

PERCENT OF DAILY VALUE	
Vitamin A	10
Vitamin C	10
Calcium	2
Iron	4
Thiamine	4
Riboflavin	6
Niacin	‡

† As part of a 2,350 calorie diet
‡ Contains less than 2 percent of the DV of this nutrient

INGREDIENTS: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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Control with daily value: a control format with reference values (daily value) for key nutrients, based on a 2,350 kilocalorie diet

CONDENSED SOUP

NUTRITION INFORMATION PER SERVING

Serving Size: 4 ounces condensed
1 cup (244g) as prepared
Servings per Container: 2¾

Calories	170		
Calories from fat	30		
	PERCENT OF DV		**DAILY VALUE (DV) †**
Fat (3g)	4		75 g or less
Saturated fat (2g)	8		25 g or less
Cholesterol (5mg)	2		300 mg or less
Sodium (910mg)	38		2,400 mg or less
Carbohydrates (27g)	8		325 g or more
Fiber (5g)	20		25 g
Protein (9g)	20		
Vitamin A	‡		
Vitamin C	2		
Calcium	4		
Iron	15		

† As part of a 2,350 calorie diet
‡ Contains less than 2 percent of the DV of this nutrient

INGREDIENTS: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Percent with daily value: format showing reference values (daily value) for key nutrients plus percent of daily values

CAKE

NUTRITION INFORMATION PER SERVING

Serving Size: 1 oz slice (28g)
Servings per Box: 14

Calories	70
Calories from fat	0
	PERCENT OF DAILY VALUE (DV)
Fat (0g)	0
Saturated fat (0g)	0
Cholesterol (0mg)	0
Sodium (115mg)	5
Carbohydrates (16g)	5
Fiber (0g)	0
Protein (1g)	2
Vitamin A	‡
Vitamin C	‡
Calcium	‡
Iron	‡

‡ Contains less than 2 percent of the DV of this nutrient

Percent without daily value: format showing the percent of reference values (daily value) for key nutrients on the label, without the specific daily values

MACARONI & CHEESE

NUTRITIDN INFDRMATIDN PER SERVING

Serving Size: ¼ box (45g) ¾ cup prepared
Servings per Container: 4

Calories	270	
Calories from fat	105	
	AMDUNT	**DAILY VALUE (DV) †**
Fat	**MEDIUM** 13 g	75 g or less
Saturated fat	**HIGH** 5 g	25 g or less
Cholesterol	**MEDIUM** 30 mg	300 mg or less
Sodium	**HIGH** 660 mg	2,400 mg or less
Carbohydrates	**MEDIUM** 31 g	325 g or more
Fiber	**LDW** 0 g	25 g
Protein	**MEDIUM** 5 g	
PERCENT OF DAILY VALUE		
Vitamin A	**MEDIUM** 4	
Vitamin C	**LDW** ‡	
Calcium	**MEDIUM** 12	
Iron	**MEDIUM** 10	

† As part of a 2,350 calorie diet
‡ Contains less than 2 percent of the DV of this nutrient

INGREDIENTS: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Adjective: use of descriptive adjectives (low, medium, or high) alongside nutrient amounts indicating relative contribution to reference values. (daily value)

FROZEN VEGETABLES

NUTRITION INFORMATION PER SERVING

Serving Size: 4½ oz (126g) ½ cup
Servings per container: 2

Calories	140	
Calories from fat	80	
CHOOSE A DIET LOW IN:	**AMDUNT**	**DAILY VALUE †**
Fat	9 g	75 g or less
Saturated fat	2 g	25 g or less
Cholesterol	0 mg	300 mg or less
Sodium	380 mg	2,400 mg or less
CHOOSE A DIET HIGH IN:		
Carbohydrates	14 g	325 g or more
Fiber	3 g	25 g
PERCENT OF DAILY VALUE		
Protein	9	
Vitamin A	10	
Vitamin C	10	
Calcium	2	
Iron	4	

† As part of a 2,350 calorie diet

INGREDIENTS: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Grouping: nutrients are grouped according to dietary recommendations as those to eat more of (carbohydrate and fiber) and less of fat, saturated fat, cholesterol, and sodium)

CONDENSED SOUP

NUTRITION INFORMATION PER SERVING

Serving Size: 4 ounces condensed
1 cup (250g) as prepared
Servings per Container: 2¾

	AMOUNT	DAILY VALUE (DV) †
Calories	170	
Calories from fat	30	
Fat	**3 g***	75 g or less
Saturated fat	**1 g***	25 g or less
Cholesterol	**5 mg***	300 mg or less
Sodium	1,000 mg	2,400 mg or less
Carbohydrates	27 g	325 g or more
Fiber	3 g	25 g
Protein	9 g	

PERCENT OF DAILY VALUE

Vitamin A	‡
Vitamin C	2
Calcium	4
Iron	8

† As part of a 2,350 calorie diet
‡ Contains less than 2 percent of the DV of this nutrient
Meets FDA definitions and is consistent with dietary recommendations as:
* Low or reduced in amount per serving

INGREDIENTS: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Highlighting: use of bold type to emphasize nutrient levels (for total fat, saturated fat, cholesterol, sodium, fiber, and calcium) consistent with dietary recommendations

Section IV.

Food Composition and Nutrient Data Bases

Nutrition Labeling and Food Composition

Figure 88. Adequacy of current methods for nutrient labeling measurements, 1992

Mandatory components for nutritional labeling	*Adequacy of official (AOAC) analytical methods*[1]	*Adequacy of certified reference materials (CRMs)*[2]
Calories	Calculated from fat, carbohydrate, and protein	#
Calories from total fat	Calculated	N/A
Total fat	+	##
Saturated fat	+	0
Cholesterol	+++	##
Total carbohydrate	Calculated	N/A
Sugars (mono- and disaccharides)	++	#
Dietary fiber	++	#
Protein	+++	###
Sodium	+++	###
Calcium	+++	###
Iron	+++	###
Vitamin A	++	###
Vitamin C	++	#

[1]Codes for Method Adequacy
+ = Research methods under development, no official methods in use.
++ = Some official methods exist, valid only for limited food types.
+++ = Official methods in use, valid for many different food types.
++++ = Official methods in use which incorporate CRMs.
[2]Codes for Certified Standards Adequacy
N/A = Not applicable.
0 = No food type CRMs available.
# = One or two food type CRMs available.
= Three or four food type CRMs available.
= Five to 10 different food type CRMs available.
= Over 10 different food type CRMs available.

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory ‡.

The Nutrition Labeling and Education Act of 1990 requires mandatory labeling of some nutrients and allows voluntary labeling of others. The Agricultural Research Service (ARS) is responsible for research and development of analytical methods for determining nutrient composition of foods and for assisting industry and regulators in meeting the laws' requirements. ARS held a workshop in early 1992 to focus future research on method development and reference materials to meet the needs of the U.S. food composition system.

- Figure 88 presents a summary of the adequacy of official analytical methods and the availability of certified reference materials (CRM) for nutrient labeling purposes (1,2). Official analytical methods are those validated by an official body such as the Association of Official Analytical Chemists (AOAC) International. CRMs are standardized food reference materials issued with a certificate of analysis from a recognized certifying body. Although a number of official methods are presently available for nutrient labeling analyses, the availability and incorporation of CRMs are not yet fully adequate to validate the accuracy of routine use of these methods, even for the mandatory nutrients.

References

1. AOAC International. Adequacy of Official (AOAC) Analytical Methods. The Referee 16(7):7–12. 1992.
2. AOAC International. Adequacy of Certified Reference Materials. The Referee 16(8):4–5. 1992.

Carbohydrate Content of Foods

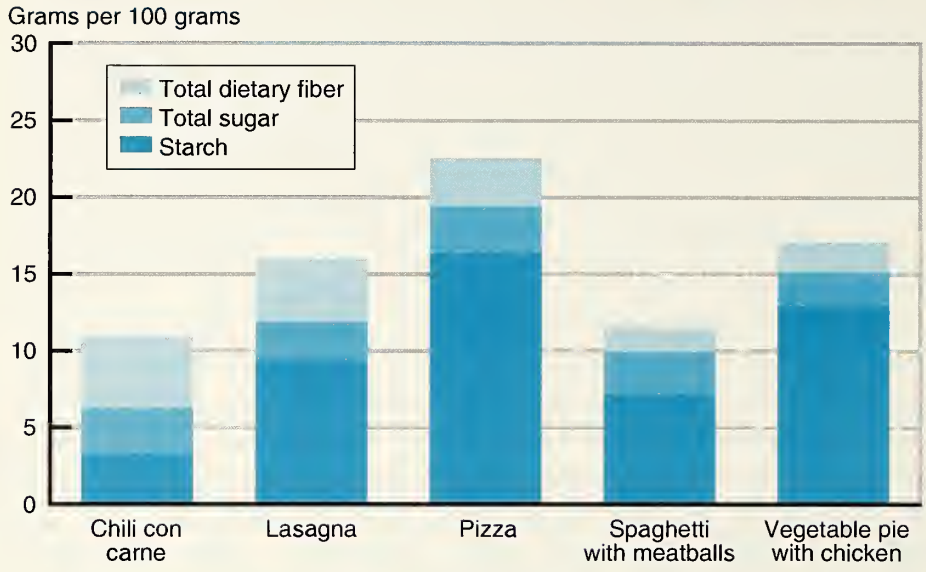

Figure 89. Carbohydrate content of selected frozen and canned foods

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory ‡.

Carbohydrates, made up of sugars and starches, are the major source of food energy in the American diet. According to the 10th Edition of the *Recommended Dietary Allowances*, approximately 41 percent of the carbohydrates in individual diets comes from grain products, and about 23 percent comes from fruits and vegetables.

- Impending nutrition labeling requirements mandate that foods containing 1 or more grams per serving of any carbohydrate must be labeled with this information. An analysis of selected prepared frozen or canned foods shows that all contain appreciable amounts of various carbohydrates (figure 89). Sugar content was determined using a gas-liquid chromatographic (GLC) technique; starch content was determined by an enzymatic procedure followed by quantifying glucose by GLC. Total dietary fiber (TDF) content was determined using a simplified TDF method.

  See data tables for detailed notes.

Fiber Content of Foods

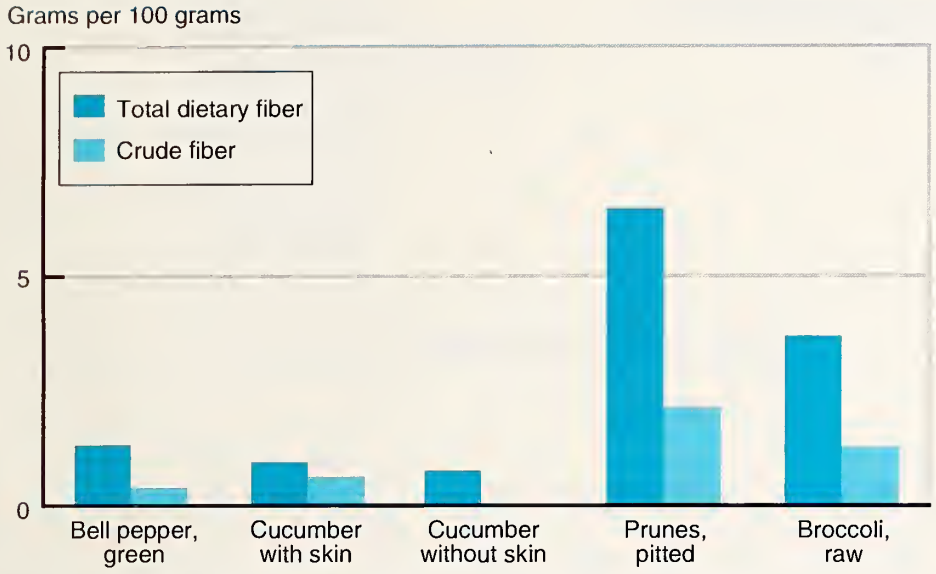

Figure 90. Comparison of total dietary fiber and crude fiber levels for selected fruits and vegetables: Nonenzymatic-gravimetric method

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory ‡.

The Food and Nutrition Board of the National Research Council has concluded that diets rich in plant foods and dietary fiber are inversely related to the incidence of cardiovascular disease, colon cancer, and diabetes (1). The *Dietary Guidelines for Americans*, developed by the U.S. Departments of Agriculture and Health and Human Services, recommend a diet rich in vegetables, fruits, and grain products, which are high in fiber and complex carbohydrates.

The estimated fiber content of foods can vary widely, depending on the method of determination used. Traditionally, the fiber content of foods has been described in terms of crude fiber, a reference to the amount of plant material remaining after being subjected to treatment with acid and alkali. The amount of fiber remaining after digestion in the human gut is referred to as total dietary fiber (2).

- A new procedure has been developed to determine total dietary fiber (TDF) in products with little or no starch. This nonenzymatic-gravimetric procedure uses no enzyme or buffer, as required by the Association of Official Analytical Chemists dietary fiber method, and is simpler to use and less costly. The method was used for TDF determinations of the selected foods shown in figure 90. Crude fiber values were taken from U.S. Department of Agriculture Handbooks 8–9 and 8–11 (3).

References

1. National Research Council. Diet and health: Implications for reducing chronic disease risk. Washington: National Academy Press. 1989
2. Mahan LK, Arlin MT. Krause's food nutrition and diet therapy. Philadelphia: W.B. Saunders Company. 1992.
3. U.S. Department of Agriculture. Agriculture handbook no 8: Composition of foods, raw, processed, prepared. Washington: U.S. Government Printing Office. 1976–92.

Vitamin C Content of Foods

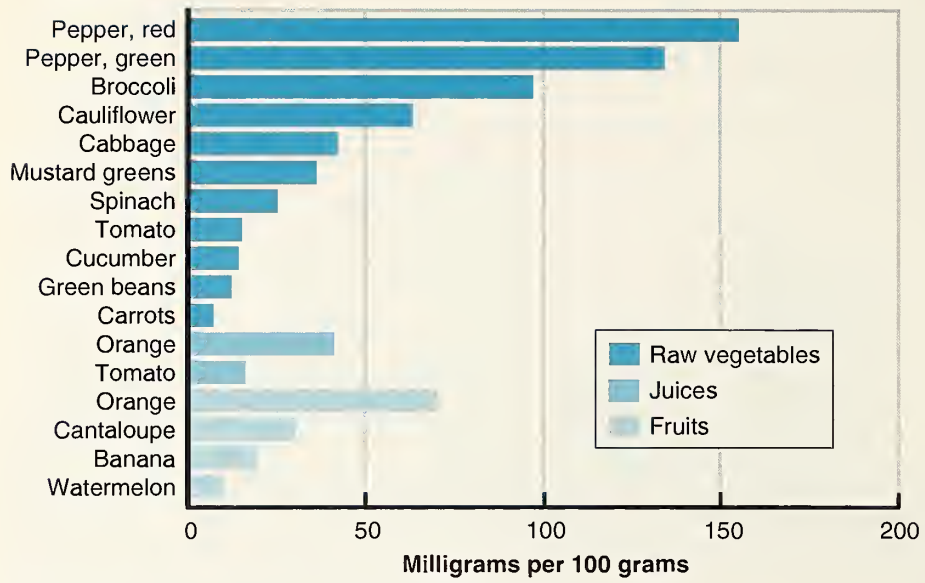

Figure 91. Mean vitamin C levels for selected fresh foods

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory ‡.

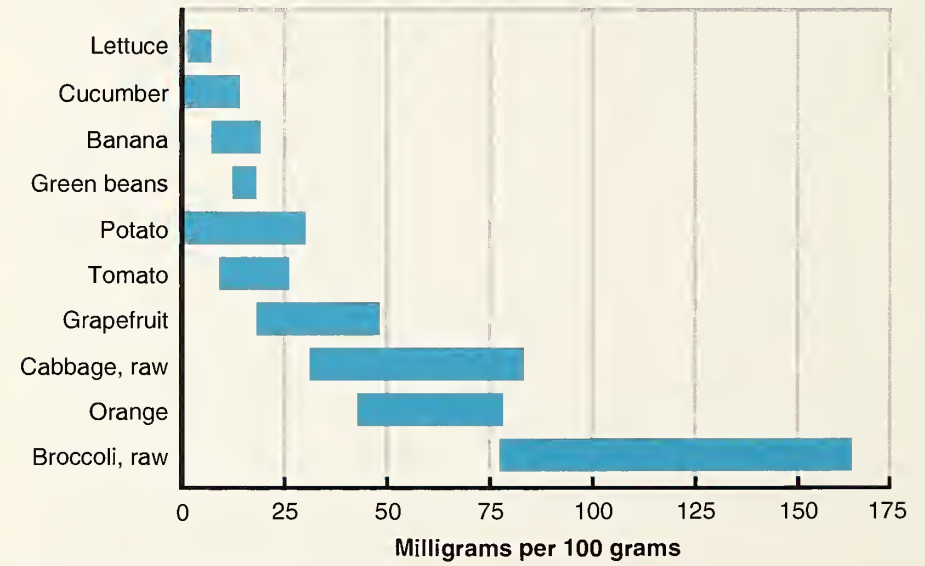

Figure 92. Range of vitamin C levels for selected fresh foods

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory ‡.

Nearly all the vitamin C in the American food supply—86 percent—is contributed by plant foods. Of this, citrus fruits contribute 38 percent; potatoes contribute 16 percent; and other vegetables contribute 32 percent (1).

- Selected fresh fruits, vegetables, and juices were analyzed for vitamin C content by high-performance liquid chromatography methods. Among foods analyzed for vitamin C content, red and green bell peppers had the highest mean level of vitamin C (figure 91). Among commonly eaten fruits, oranges had the highest mean vitamin C level, and orange juice contained nearly three times the level of tomato juice.
- Data from laboratory analyses and from the U.S. Department of Agriculture's Handbooks 8–9 and 8–11 indicate large variability in the vitamin C content of selected fruits and raw vegetables (2). Broccoli, cabbage, and potatoes were among the foods exhibiting the greatest variability in mean vitamin C content, whereas lettuce and green beans were among the foods exhibiting the least variability (figure 92).

See data tables for detailed notes.

References

1. Marston R, Raper N. Nutrient content of the U.S. food supply. Natl Food Rev. Winter-Spring, NFR-36:18–23. 1987.
2. U.S. Department of Agriculture. Agriculture handbook no 8: Composition of foods, raw, processed, prepared. Washington: Government Printing Office. 1976–92.

Selenium Content of Foods

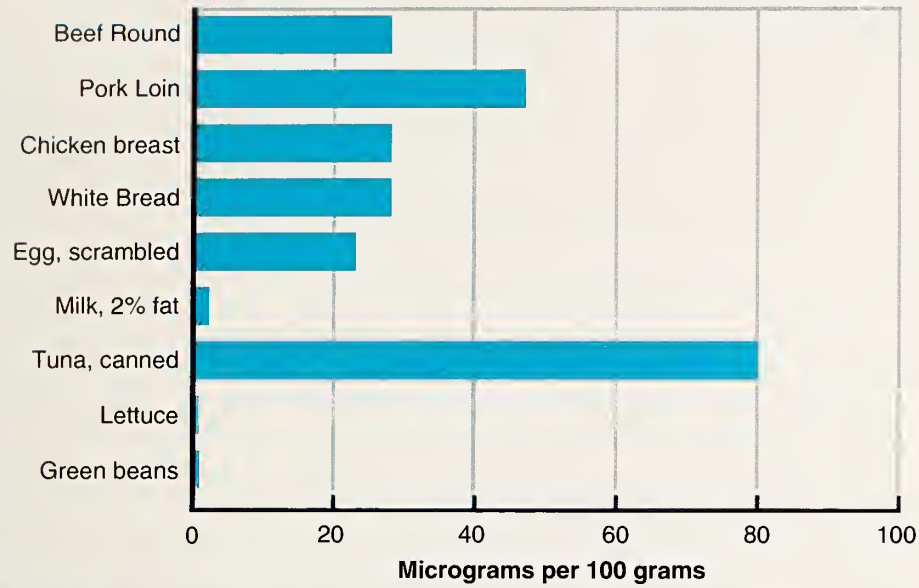

Figure 93. Mean selenium levels for selected frequently consumed foods

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory, and Human Nutrition Information Service ‡.

Selenium data were compiled from the scientific literature and extensive nationwide analyses, and published as the Provisional Table on the Selenium Content of Foods (1). Levels of this essential trace element are generally highest in seafoods, meats, and grains; fruits and vegetables are usually low in selenium (2).

- Figure 93 presents mean selenium levels for the edible portion of selected frequently consumed foods. Mean selenium levels were highest in canned tuna fish and pork loin. Beef round, chicken breast, white bread, and eggs contained appreciable amounts, and lettuce and green beans contained negligible amounts of selenium.

References

1. U.S. Department of Agriculture. Provisional table on the selenium content of foods. HNIS/PT-109. Hyattsville, Maryland: Human Nutrition Information Service. 1993.
2. National Research Council. Recommended dietary allowances, 10th ed. Washington: National Academy Press. 1989.

Carotenoid Content of Foods

Values for five carotenoids in fruits and vegetables were critically evaluated by compiling acceptable data from multiple sources. Median carotenoid values for approximately 120 fruits and vegetables were developed.

- The data show substantial variability in carotenoid profiles from food to food. An approximate 10-fold difference is noted in the levels of carotenoids found in some fruits (figure 94) compared with that of some vegetables (figure 95).

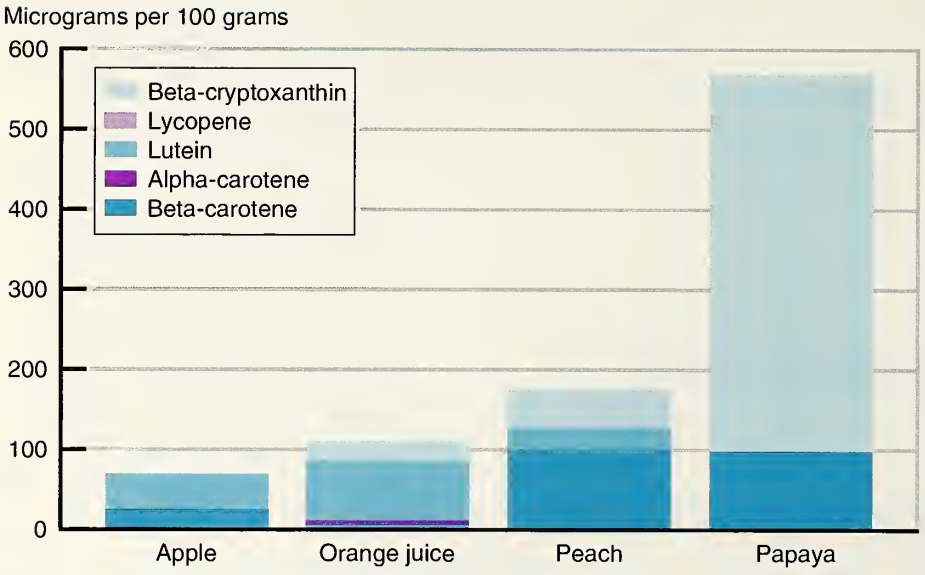

Figure 94. Median carotenoid levels for selected fruits

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory, and Department of Health and Human Services, National Institutes of Health, National Cancer Institute ‡.

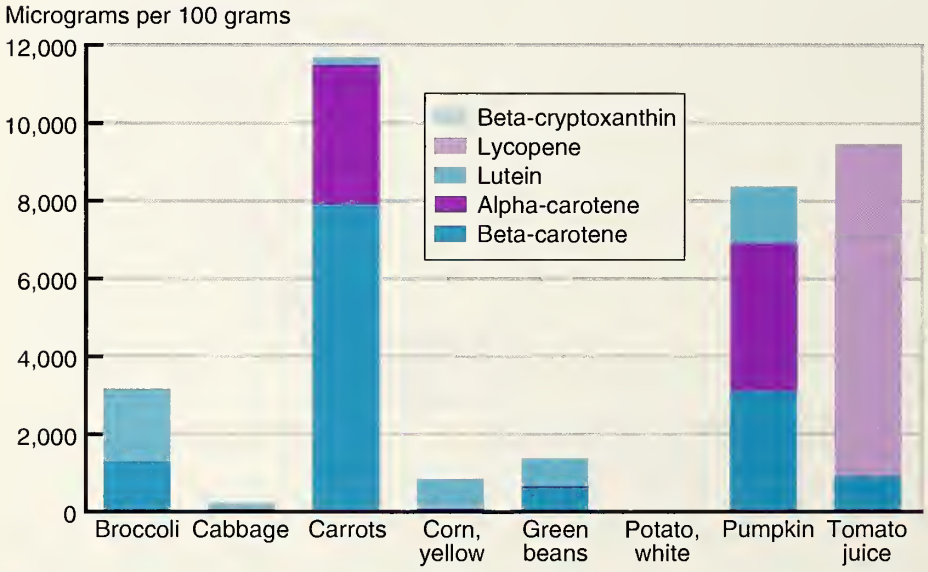

Figure 95. Median carotenoid levels for selected vegetables

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory, and Department of Health and Human Services, National Institutes of Health, National Cancer Institute ‡.

Section V.

Food Supply Determinations

Per Capita Food Supply Trends

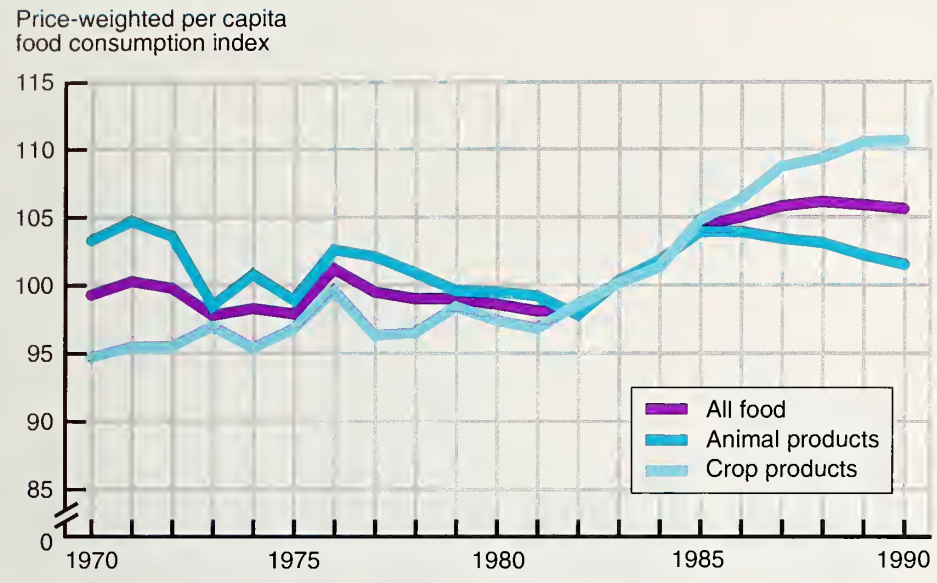

Figure 96. Per capita index of food supplies, 1970–90

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division †.

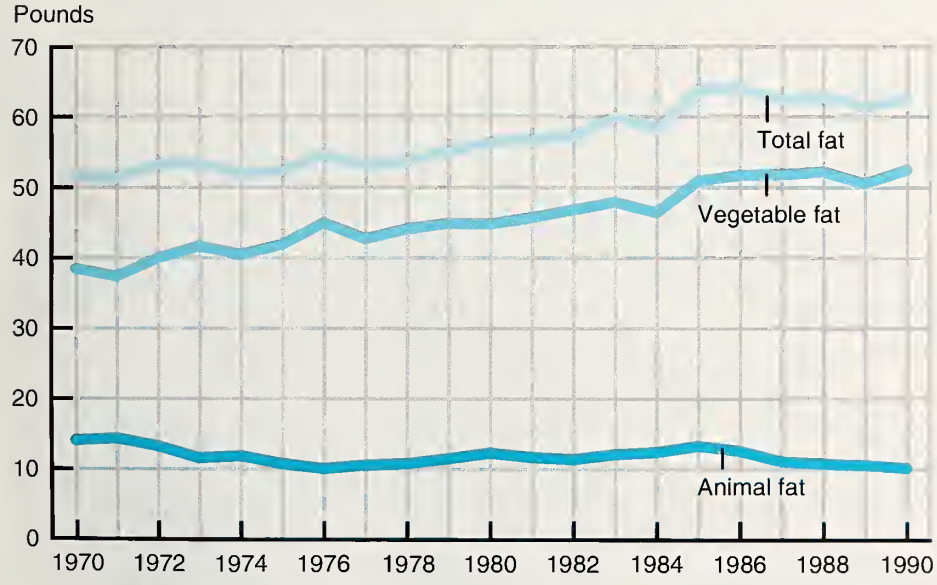

Figure 97. Per capita food fats and oils in the food supply, 1970–90

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division †.

Long-term trends in per capita total food supplies are measured using a price-weighted food consumption index that weights the quantity of a food consumed by its price. The index, which combines various foods on the basis of their relative economic importance (price per unit of weight), shows changes in quantity and reflects shifts among major food categories over time.

- Per capita food supplies in the United States increased about 6 percent during the 1970–90 period (figure 96). The trend toward the increased importance of crop-derived foods compared with foods from animal products is nutritionally significant. In 1970 the index of food supplies from animal products exceeded the crop foods index by 9 percent. By 1990 the reverse was true. Between 1970 and 1990 crop-derived foods increased 17 percent per capita while animal-based foods decreased 2 percent.
- Per capita supplies of food fats and oils increased 10 pounds from 1970–90 (figure 97). A 36 percent increase in use of vegetable fats and oils more than offset a 28 percent decrease in use of animal fats. In 1990 animal fat constituted 16 percent of total fat supplies from food fats and oils, compared with 27 percent in 1970. In contrast, vegetable fats and oils constituted 73 percent of total fats and oils food supplies in 1970, compared with 84 percent in 1990.
- Per capita supplies of fats and oils declined over 2 percent from 1986–90.

See data tables for detailed notes.

Per Capita Use of Selected Foods and Sweeteners

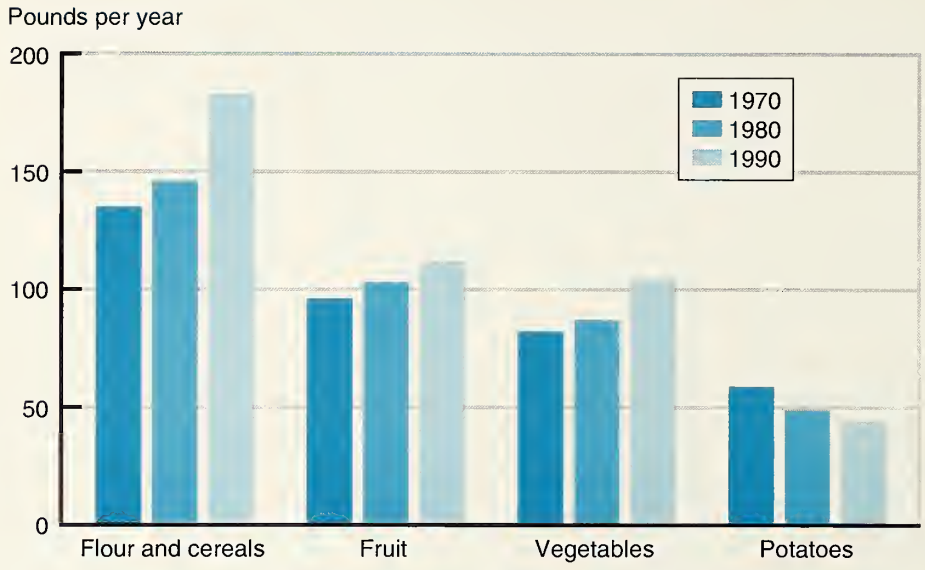

Figure 98. Per capita use of grain products and fresh produce, 1970, 1980, and 1990

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division †.

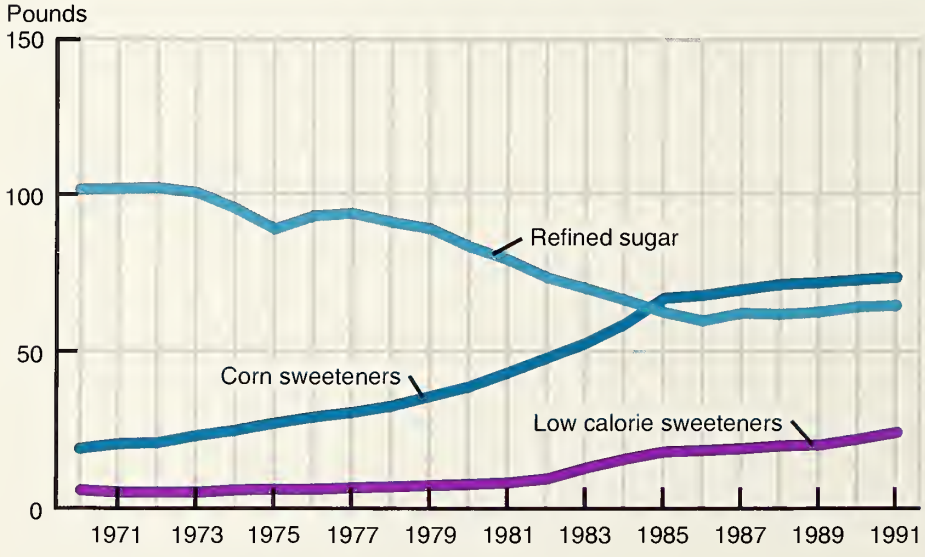

Figure 99. Annual per capita use of sweeteners, 1970–91

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division †.

- Annual per capita use of flour and cereal products, fresh fruits, and fresh vegetables increased 25, 9, and 20 percent, respectively, from 1980–90 (figure 98). Also during this period, per capita use of low-calorie sweeteners (mainly aspartame and saccharin) increased faster than caloric sweetener use (figure 99).
- Fresh fruit use increased 16 pounds per capita from 1970 to a total of 112 pounds (retail-weight equivalent) in 1990; the rise was due entirely to sharp increases in use of noncitrus fruits.
- Total per capita use of 17 major commercial fresh vegetables (excluding potatoes) in 1990 was 27 percent above the 1970 level. Leading gainers were onions, up 6 pounds per person; lettuce, up 5 pounds; tomatoes, up 3 pounds; and broccoli, up 3 pounds. Americans also used more artichokes, asparagus, carrots, cauliflower, cucumbers, eggplant, garlic, green peppers, and mushrooms, although use of cabbage, celery, corn, and green beans declined.
- Per capita use of fresh potatoes declined 26 percent from 1970–90, although use of frozen potatoes nearly doubled to 25 pounds per person in 1990.
- Total per capita use of caloric sweeteners—comprised of refined sugar, corn sweeteners, pure honey, maple syrup, and edible molasses—increased 18 pounds on a dry-weight basis (15 percent) during 1970–91, from 121 to 139 pounds. By 1991 low-calorie sweetener use was about 24 pounds per person in sugar-sweetness equivalent, accounting for about 15 percent of overall sweetener use, compared with 5 percent in 1970.

See data tables for detailed notes.

Per Capita Use of Meats, Poultry, Fish, and Eggs

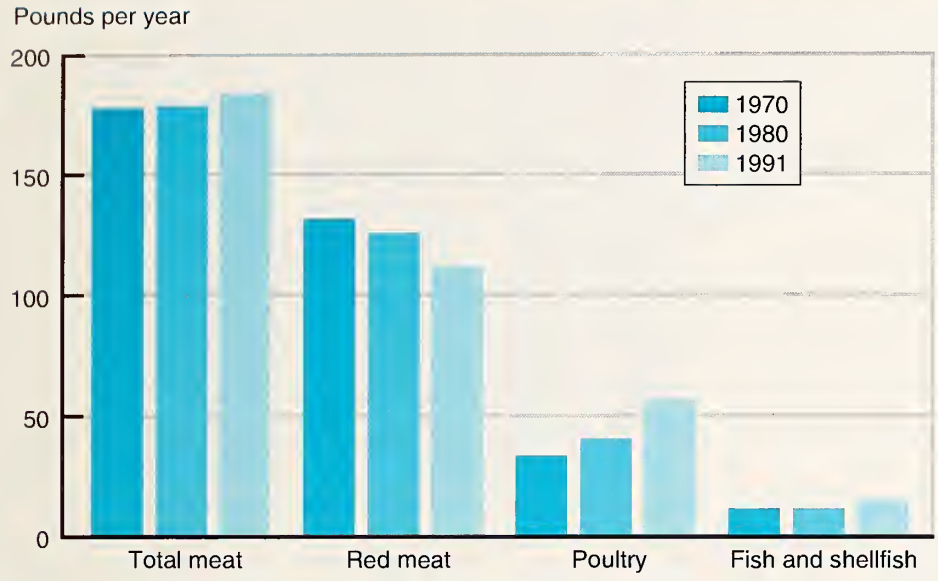

Figure 100. Per capita use of meats, poultry, and fish, boneless and trimmed equivalent, 1970, 1980, and 1991

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division †.

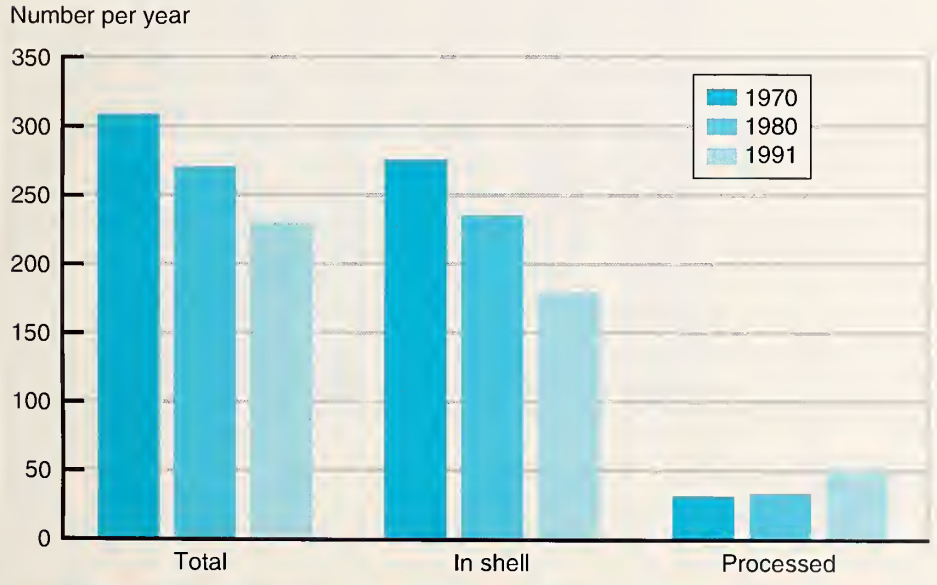

Figure 101. Per capita use of eggs, 1970, 1980, and 1991

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division †.

- In 1991 Americans used an average of 112 pounds of red meat, 58 pounds of poultry, and 15 pounds of fish and shellfish (equivalent boneless) per capita (figure 100). Between 1970 and 1991 total annual per capita egg use declined 25 percent (figure 101). Conversely, eggs used in the production of liquid, frozen, and dried egg products increased 46 percent per capita since 1983.
- Red meat accounted for 61 percent of the total meat supply in 1991 compared with 70 percent in 1980 and 74 percent in 1970. By 1991 chicken and turkey accounted for 31 percent of the total meat used, up from 23 percent in 1980 and 19 percent in 1970. Fish and shellfish accounted for 8 percent of total meat used in 1991 and 7 percent in 1980 and 1970.
- In 1991 Americans used 21 pounds less red meat, 24 pounds more poultry, and 3 pounds more fish and shellfish per capita than in 1970.
- Per capita egg usage has declined steadily since the end of World War II. Between 1970 and 1991 total annual per capita egg use decreased from 309 to 231 eggs, while annual per capita use of eggs in the form of egg products rose from 33 to 51 eggs.

See data tables for detailed notes.

Per Capita Calcium in the Food Supply

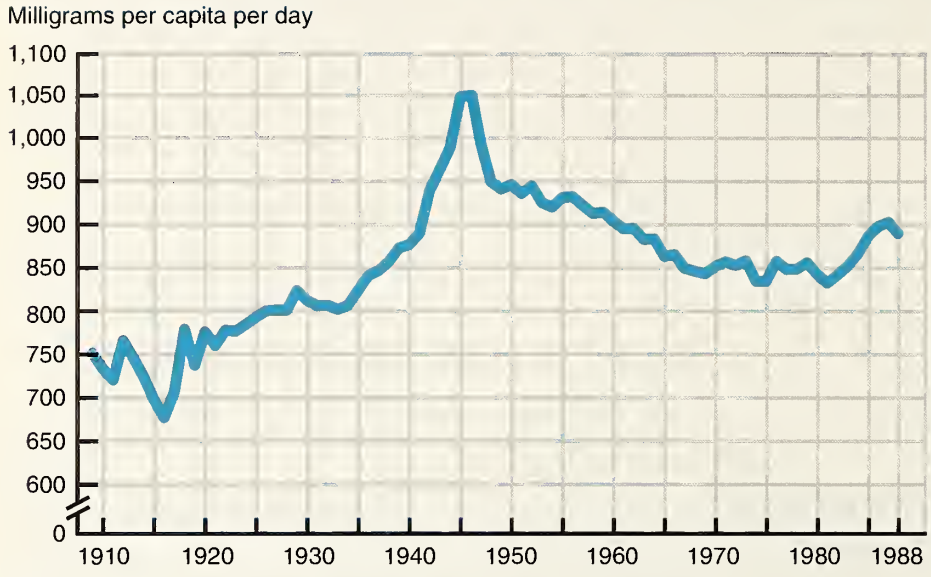

Figure 102. Per capita calcium available in the food supply, 1909–88

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service ‡.

The 1989 Recommended Dietary Allowances for calcium are 1,200 milligrams (mg) per day for males and females 11–24 years of age and for pregnant and lactating women, and 800 mg per day for children 1–10 years of age and adults 25 years of age and over.

- The level of calcium available in the food supply in 1988 was 890 mg per capita per day, as shown in figure 102. In comparison, a mean level of 740 mg calcium per capita per day was available during the 5-year period 1909–14, while a mean level of 1,000 mg per capita per day was available in 1945–49, when use of dairy products was highest.

  See data tables for detailed notes.

Sources of Calcium in the Food Supply

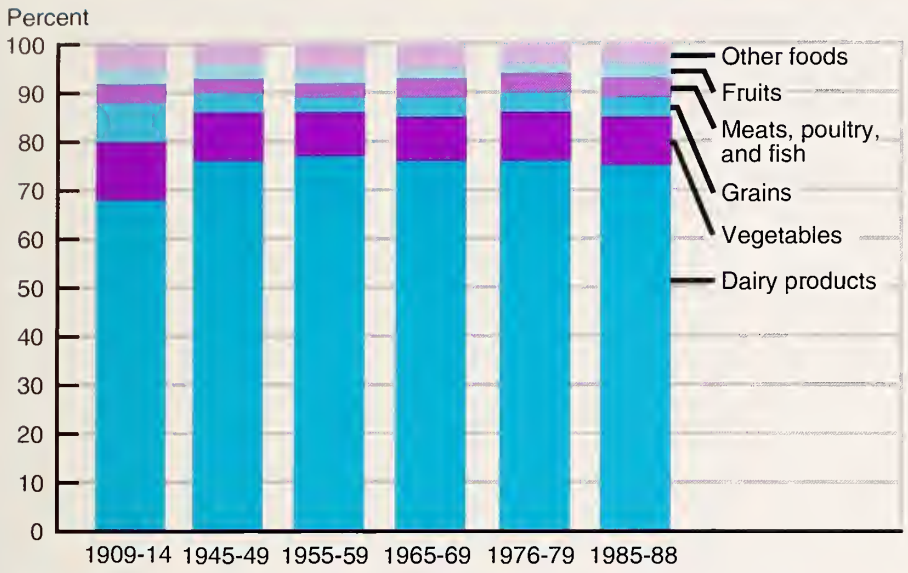

Figure 103. Sources of calcium in the food supply for selected years, 1909–88

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service ‡.

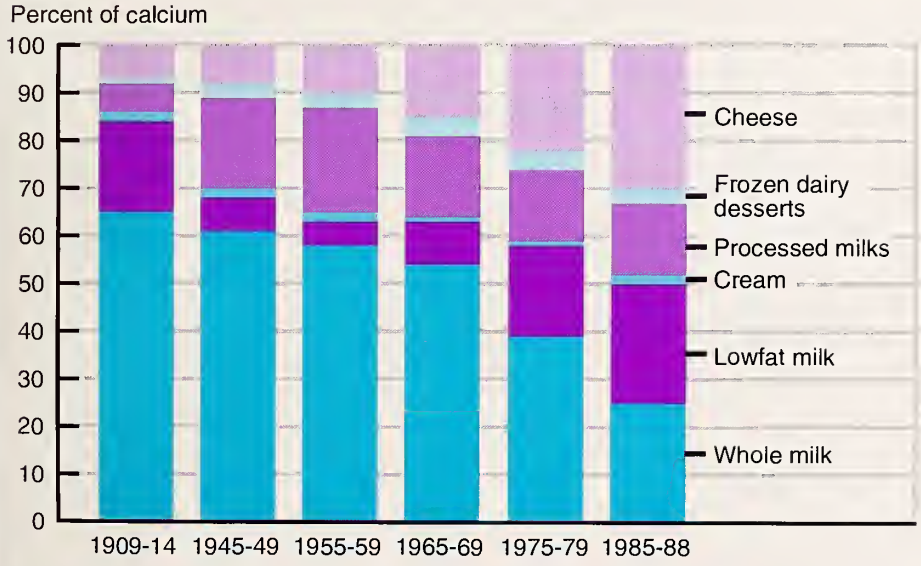

Figure 104. Sources of calcium from dairy products for selected years, 1909–88

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service ‡.

Dairy products are the major source of calcium in the food supply. In 1988 they provided about three-fourths of the dietary calcium in this country, up from two-thirds during the 5-year period 1909–14.

- Figure 103 depicts the changes in food sources of calcium in the food supply between 1909 and 1988. Foods other than dairy products, chiefly vegetables, provided approximately 25 to 32 percent of the calcium in the food supply during this period.
- Among dairy products, the share from whole milk declined from 65 to 25 percent between 1909–14 and 1985–88, while shares from lowfat milk and cheese increased from 19 to 25 percent and from 7 to 30 percent, respectively (figure 104).

See data tables for detailed notes.

Data Tables and Notes for Figures

Figure 1. Median body mass index for males 20–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

Age	Non-Hispanic white	Non-Hispanic black	Mexican American
	Body mass index (kilograms per meter^2)		
20–24 years	23.2	22.4	23.2
25–29 years	24.1	23.8	25.0
30–34 years	25.2	24.3	25.6
35–39 years	25.4	24.6	26.6
40–44 years	26.1	25.9	26.9
45–49 years	26.0	27.6	26.8
50–54 years	25.8	26.4	26.7
55–59 years	25.9	25.2	26.8
60–64 years	25.8	25.8	26.8
65–69 years	25.7	24.0	26.2
70–74 years	25.2	25.2	25.2

NOTE: Data for non-Hispanic white and non-Hispanic black subjects were from the 1976–80 National Health and Nutrition Examination Survey (NHANES II), which was a national probability sample. Data for Mexican-American subjects were from the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES), which was not a national probability sample.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80, and Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 2. Median body mass index for females 20–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

Age	Non-Hispanic white	Non-Hispanic black	Mexican American
	Body mass index (kilograms per meter^2)		
20–24 years	21.6	22.4	23.4
25–29 years	22.3	24.5	23.5
30–34 years	22.6	25.8	25.7
35–39 years	23.2	27.2	26.4
40–44 years	23.4	27.6	26.9
45–49 years	24.0	27.7	27.8
50–54 years	24.8	29.2	27.6
55–59 years	25.2	28.9	27.6
60–64 years	25.3	28.1	28.3
65–69 years	25.7	28.0	28.3
70–74 years	25.8	27.6	26.8

NOTE: Data for non-Hispanic white and non-Hispanic black subjects were from the 1976–80 National Health and Nutrition Examination Survey (NHANES II), which was a national probability sample. Data for Mexican-American subjects were from the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES), which was not a national probability sample.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80, and Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 3. Percent of overweight males 20–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

Age	Non-Hispanic white	Non-Hispanic black	Mexican American
	Percent		
20–29 years	15.1	12.4	20.4
30–39 years	24.5	24.3	34.6
40–49 years	31.7	46.0	38.2
50–59 years	28.9	30.5	36.0
60–69 years	28.1	29.2	34.0
70–74 years	24.7	24.3	26.8

NOTE: Overweight was defined as a body mass index (BMI) at or above the sex-specific 85th percentile of the 1976–80 National Health end Nutrition Examination Survey (NHANES II) reference population 20–29 years of age. For men, this was a BMI greater than or equal to 27.8 kilograms per meter^2; for women, it was a BMI greater than or equal to 27.3 kilograms per meter^2. Data for non-Hispanic white and non-Hispanic black subjects were from NHANES II, which was a national probability sample. Data for Mexican-American subjects were from the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES), which was not a national probability sample.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health end Nutrition Examination Survey II, 1976–80, and Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 4. Percent of overweight females 20–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

Age	Non-Hispanic white	Non-Hispanic black	Mexican American
		Percent	
20–29 years	12.2	27.5	24.4
30–39 years	20.6	36.4	39.5
40–49 years	27.4	50.1	47.9
50–59 years	32.7	62.6	53.4
60–69 years	35.6	61.4	59.9
70–74 years	34.9	54.0	43.0

NOTE: Overweight was defined as a body mass index (BMI) at or above the sex-specific 85th percentile of the 1976–80 National Health and Nutrition Examination Survey (NHANES II) reference population 20–29 years of age. For men, this was a BMI greater than or equal to 27.8 kilograms per meter^2; for women, it was a BMI greater than or equal to 27.3 kilograms per meter^2. Data for non-Hispanic white and non-Hispanic black subjects were from NHANES II, which was a national probability sample. Data for Mexican-American subjects were from the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES), which was not a national probability sample.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80, and Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 5. Ten-year incidence of major weight gain among adults 25–74 years of age, 1971–75 and 1982–84

Age at initial measurement	Male	Female	Relative risks of major weight gain of females compared to males
	Percent (95 percent confidence intervals)		Relative risk (95 percent confidence intervals)
25–34 years	3.9 (2.4, 5.4)	8.4 (6.7, 10.1)	2.2 (1.4–3.3)
35–44 years	3.2 (1.6, 4.8)	7.2 (5.8, 8.6)	2.3 (1.3–3.9)
45–54 years	2.2 (1.0, 3.4)	3.8 (2.4, 5.2)	1.7 (0.9–3.5)
55–64 years	0.9 (0.2, 1.7)	1.7 (0.7, 2.8)	1.9 (0.7–5.5)
65–74 years	0.5 (0.0, 1.0)	0.9 (0.1, 1.7)	1.8 (0.5–7.1)

SOURCE: Data analyzed by the Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, from data compiled by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey (NHANES I), 1971–75, and Office of Analysis and Epidemiology, NHANES I Epidemiologic Followup Study, 1982–84.

Figure 6. Percent of overweight adults who are trying to lose weight, according to method of weight loss and sex, 1990

Sex	Diet only	Exercise only	Both diet and exercise	Other and unknown
		Percent		
Total	18.7	5.1	25.7	4.7
Male	14.2	5.8	22.0	4.3
Female	22.8	4.5	29.0	5.0

NOTE: Overweight was defined as a body mass index (BMI) at or above the sex-specific 85th percentile of the 1976–80 National Health and Nutrition Examination Survey (NHANES II) reference population 20–29 years of age. For men, this was a BMI greater than or equal to 27.8 kilograms per meter^2; for women, it was a BMI greater than or equal to 27.3 kilograms per meter^2. The choices of methods for trying to lose weight are mutually exclusive.

SOURCE: Data analyzed by the Centers for Disease Control and Prevention, National Center for Health Statistics, Office of Analysis and Epidemiology, from data compiled by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, National Health Interview Survey.

Figure 7. Percent of specific weight loss practices of adult males, by body mass index, 1991

Weight loss practices	Body mass index (kilograms per meter^2)		
	Less than 26	*26 to less than 30*	*30 or more*
	Percent		
Questionable practices	12	7	13
Over-the-counter products	7	5	11
Diet supplements	1	4	4
Organized diet programs	4	4	7
Meal replacements	10	16	13
Vitamins	26	27	23
Exercise	82	75	78
Diet	76	86	81

NOTE: Data were collected using a random-digit dialed telephone technique. Percentages are adjusted for age, sex, race, and education based on 1990 census data. The methods for trying to lose weight are not mutually exclusive. BMI is an index used to relate body weight to stature. The BMI classifications used here broadly group people as normal weight, overweight, and obese persons for the purpose of analysis.

SOURCE: Food and Drug Administration, Consumer Studies Branch, Weight Loss Practices Survey.

Figure 8. Percent of specific weight loss practices of adult females, by body mass index, 1991

Weight loss practice	Body mass index (kilograms per meter^2)		
	Less than 26	*26 to less than 30*	*30 or more*
	Percent		
Questionable practices	7	10	12
Over-the-counter products	12	12	19
Diet supplements	3	2	7
Organized diet programs	8	16	21
Meal replacements	16	16	16
Vitamins	33	33	34
Exercise	87	77	77
Diet	84	91	89

NOTE: Data were collected using a random-digit dialed telephone technique. Percentages are adjusted for age, sex, race, and education based on 1990 census data. The methods for trying to lose weight are not mutually exclusive. BMI is an index used to relate body weight to stature. The BMI classifications used here broadly group people as normal weight, overweight, and obese persons for the purpose of analysis.

SOURCE: Food and Drug Administration, Consumer Studies Branch, Weight Loss Practices Survey.

Figure 9. Percent body fat of male soldiers for selected years, 1864–1984

Year	*Percent body fat*
1864	16.9
1919	15.7
1946	14.4
1984	17.3

NOTE: Percent body fat refers to the percent of total body weight attributed to body fat.

SOURCE: U.S. Department of Defense, U.S. Army Research Institute of Environmental Medicine, Military Nutrition Division, 1864, 1919, 1946, and 1984.

Figure 10. Percent of adults 20–74 years of age needing lipoprotein analysis, by race and ethnicity, 1976–80 and 1982–84

Race and ethnicity	*Total*	*High blood cholesterol values*	*Borderline-high cholesterol values plus coronary heart disease (CHD) or at least two other CHD risk factors*
		Percent	
White	41	27	14
Black	39	24	15
Mexican American	30	17	13
Puerto Rican	30	18	12
Cuban	34	18	16

NOTE: Data for white and black subjects were from the 1976–80 National Health and Nutrition Examination Survey (NHANES II), which was a national probability sample. The white and black populations in NHANES II included Hispanics. Data for Mexican Americans, Cubans, and Puerto Ricans were from the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES), which was not a national probability sample. High blood cholesterol values were defined as serum total cholesterol levels greater than or equal to 240 milligrams per deciliter; borderline-high cholesterol values were defined as serum total cholesterol levels between 200 and 239 milligrams per deciliter.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80, and Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 11. Percent of adults 20–74 years of age needing lipoprotein analysis who would be candidates for intervention, by race and ethnicity, 1976–80 and 1982–84

Race and ethnicity	*Total*	*High-risk low-density lipoprotein cholesterol values*	*Borderline-high-risk low-density lipoprotein cholesterol values plus coronary heart disease (CHD) or at least two other CHD risk factors*
		Percent	
White	88	62	26
Black	88	63	25
Mexican American	78	41	37

NOTE: Data for white and black subjects were from the 1976–80 National Health and Nutrition Examination Survey (NHANES II), which was a national probability sample. The white and black populations in NHANES II included Hispanics. Data for Mexican Americans, Cubans, and Puerto Ricans were from the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES), which was not a national probability sample. The numbers of Cubans and Puerto Ricans referred for lipoprotein analysis with known low-density lipoprotein cholesterol (LDL-C) determinations were too small to present statistically reliable results. High-risk LDL-C values were defined as LDL-C levels greater than or equal to 160 milligrams per deciliter; borderline-high-risk LDL-C values were LDL-C levels between 130 and 159 milligrams per deciliter. Based on statistical analyses, the investigators concluded that although the prevalence estimates were based on a single measurement these estimates do not seem appreciably biased by not having repeated blood lipid measurements.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80, and Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 12. Plasma nutrient levels and risk of developing senile cataracts

Plasma nutrient level	*Vitamin C*	*Carotenoids*
	Adjusted odds ratio for cataracts	
Low	3.5	5.6
Moderate	3.7	1.4
High	1.0	1.0

NOTE: Plasma vitamin C levels were defined as follows: low was less than 40 micromoles per liter; moderate was 40–90 micromoles per liter; and high was greater than 90 micromoles per liter. Plasma carotenoid levels were defined as follows: low was less than 1.7 micromoles per liter; moderate was 1.7–3.3 micromoles per liter; and high was greater than 3.3 micromoles per liter.

SOURCE: Collaborative study conducted by U.S. Department of Agriculture, Agricultural Research Service, Human Nutrition Research Center for Aging at Tufts University, Brigham and Women's Hospital, and the Center for Clinical Cataract Research.

Figure 13. Low fruit and vegetable intake and risk of developing senile cataracts

Food group	*Adjusted odds ratio for cataracts*
Fruits	3.4
Vegetables	3.6
Fruits and vegetables	5.7

NOTE: Low fruit and vegetable intake was defined as an average intake of less than 1.5 servings of fruit, less than 2 servings of vegetables, or less than 3.5 servings of fruits and vegetables per day.

SOURCE: Collaborative study conducted by U.S. Department of Agriculture, Agricultural Research Service, Human Nutrition Research Center for Aging at Tufts University, Brigham and Women's Hospital, and the Center for Clinical Cataract Research.

Figure 14. Weight gain advice for married mothers, by race, 1980 and 1988

	Percent of mothers			
	White		*Black*	
Weight gain advice	*1980*	*1988*	*1980*	*1988*
Less than 22 pounds	27	11	34	27
22–27 pounds	49	37	40	37
28–34 pounds	22	38	24	25
35 or more pounds	3	14	2	11

NOTE: Refers to married mothers starting care in the first trimester of pregnancy. The medical community's advice on weight gain prior to 1990 was not based on a woman's body mass index (BMI). BMI is an index that relates weight to stature (BMI = weight/height^2).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Natality Survey, and National Maternal and Infant Health Survey.

Figure 15. Percent of live births of 40 weeks gestation or longer, by maternal weight gain and race of mother, 1989

Maternal weight gain	*White*	*Black*
	Percent of births	
Less than 16 pounds	7.0	13.0
16–20 pounds	9.7	13.5
21–25 pounds	15.3	14.8
26–30 pounds	21.4	18.5
31–35 pounds	16.1	12.0
36–40 pounds	13.5	11.3
41 or more pounds	17.0	17.0

NOTE: Refers to married and unmarried mothers. The Institute of Medicine recommends that women of normal prepregnancy body mass index (BMI) gain 25 to 35 pounds during pregnancy and that young adolescents and black women strive for weight gains at the upper end of this range. Body mass index is an index that relates weight to stature (BMI = weight/height^2). Normal BMI was defined as 19.8 to 26.0 kilograms per meter^2. Findings exclude data for California, Louisiana, Nebraska, and Oklahoma, which did not require reporting of weight gain during pregnancy.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System.

Figure 16. Anemia rates during pregnancy per 1,000 live births, by maternal age and race, 1989

Age	*White*	*Black*
	Rate	
Less than 20 years	24.4	42.2
20–24 years	18.3	39.7
25–29 years	13.6	32.2
30–34 years	12.1	29.8
35–39 years	12.5	28.1
40–49 years	14.3	26.8

NOTE: Anemia was diagnosed during pregnancy, and was defined as a hemoglobin less than 10.0 grams per deciliter or a hematocrit less than 30 percent. Information about anemia on U.S. certificates of live birth was collected from the medical record. Findings exclude data for Louisiana, Nebraska, and Oklahoma, which did not report medical risk factors.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System.

Figure 17. Percent of live births that were low birth weight for women with or without anemia, by maternal age and race, 1989

Age	With anemia	Without anemia
	Percent	
White		
Less than 20 years	9.8	7.5
20–24 years	8.6	5.7
25–29 years	9.4	5.0
30–34 years	9.8	5.4
35–49 years	10.1	6.3
Black		
Less than 20 years	14.2	13.4
20–24 years	15.3	12.7
25–29 years	16.9	13.4
30–34 years	18.9	14.4
35–49 years	20.6	14.5

NOTE: Anemia was diagnosed during pregnancy, and was defined as a hemoglobin less than 10.0 grams per deciliter or a hematocrit less than 30 percent. Information about anemia on U.S. certificates of live birth was collected from the medical record. Findings exclude data for Louisiana, Nebraska, and Oklahoma, which did not report medical risk factors.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System.

Figure 18. Percent of low-income women in the second and third trimesters of pregnancy with anemia, by race and ethnicity, 1990

Race and ethnicity	Trimester	
	Second	Third
	Percent	
Non-Hispanic white	9.3	24.6
Non-Hispanic black	21.4	45.8
Hispanic	11.4	31.9
American Indian	11.9	32.8
Asian or Pacific Islander	11.8	26.8

NOTE: Hemoglobin and/or hematocrit levels are routinely measured for women receiving prenatal care at public health clinics. Hemoglobin and hematocrit values change substantially during the course of a normal pregnancy, and anemia must be characterized according to the specific stage of pregnancy. The Centers for Disease Control and Prevention use month-specific and trimester-specific hemoglobin and hematocrit cut-off values for defining anemia. To see a list of these specific values refer to Reference 2 for this report. In addition, the Pregnancy Nutrition Surveillance System adjusts the hemoglobin and hematocrit values for altitude and for smokers.

SOURCE: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Pregnancy Nutrition Surveillance System.

Figure 19. Alcohol consumption in the past month among pregnant women 18–45 years of age, by year of interview, 1985–88

Year of interview	Percent
1985	32
1986	28
1987	22
1988	20

SOURCE: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office of Surveillance and Analysis, Behavioral Risk Factor Surveillance System.

Figure 20. Percent of babies breastfed at all, by year of birth and race of mother, 1970–87

Race	Year of birth								
	1970–71	1972–73	1974–75	1976–77	1978–79	1980–81	1982–83	1984–85	1986–87
	Percent								
Total	24.3	23.6	32.4	42.2	44.3	52.5	57.3	55.5	55.0
White	25.8	25.6	35.5	46.2	48.1	57.2	62.3	59.9	60.3
Black	12.8	12.9	16.4	19.5	24.4	24.5	27.0	22.9	23.6

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Survey of Family Growth, 1973, 1976, 1982, and 1988.

Figure 21. Percent of babies breastfed at all, by year of birth and educational level of mother, 1970–87

Educational level	Year of birth								
	1970–71	1972–73	1974–75	1976–77	1978–79	1980–81	1982–83	1984–85	1986–87
	Percent								
Less than 12 years	17.9	15.5	18.1	25.6	25.3	32.1	30.5	32.9	31.2
12 years	18.5	20.4	31.0	35.3	41.4	44.9	53.6	46.8	49.2
More than 12 years	39.9	39.1	50.7	62.3	55.0	73.4	73.7	74.7	72.8

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Survey of Family Growth, 1973, 1976, 1982, and 1988.

Figure 22. Low birth weight as a percent of total live births, by age of mother and race of infant, 1986–88

Age of mother	All races	White	Black	American Indian and Alaska Native
	Percent			
Less than 15 years	13.7	10.4	16.2	7.7
15–19 years	9.3	7.7	13.1	6.0
20–24 years	7.1	5.8	12.3	5.2
25–29 years	6.1	5.1	12.5	5.6
30–34 years	6.2	5.2	13.0	6.5
35–39 years	6.9	6.0	13.4	7.2
40 years and over	7.9	7.1	12.9	8.7

NOTE: Data were obtained from U.S. certificates of live birth. Information for American Indians and Alaska Natives are for mothers who reside in IHS service areas that include counties containing reservations of Federally recognized tribes and in some cases surrounding counties. The racial designation of the infant, used in this report, is determined from the race of the parents as entered on the birth certificate. Data for all races, whites, and blacks are from 1987; data for American Indians and Alaska Natives are from 1986–88. The number of American Indian and Alaska Native vital events that occur each year is usually small when categorized by age of mother, geographic location, and other factors. For this population, 3-year natality rates were used to reduce the low frequency effect. The 3-year percent shown above is calculated based on the total number of low-birth weight births that occurred during the 3-year period under study divided by the total number of live births during these 3 years. The data exclude 165 American Indian and Alaska Native live births, 4,885 all-races live births, and 3,571 white births where birth weight was not stated.

SOURCE: Data analyzed by the Indian Health Service, Division of Program Statistics from data compiled by the Centers for Disease Control and Prevention, National Center for Health Statisics, Division of Vital Statistics, National Vital Registration System.

Figure 23. Low birth weight as a percent of total live births of 40 weeks gestation or longer, by maternal weight gain and race of mother, 1989

Maternal weight gain	White	Black
	Percent of births	
Less than 16 pounds	2.8	6.8
16–20 pounds	2.2	5.4
21–25 pounds	1.5	3.7
26–30 pounds	1.1	3.0
31–35 pounds	0.9	2.4
36–40 pounds	0.9	2.3
41 or more pounds	0.8	1.8

NOTE: Refers to married and unmarried mothers. Data were obtained from 1989 U.S. certificates of live births. The Institute of Medicine recommends that women of normal prepregnancy body mass index (BMI) gain 25 to 35 pounds during pregnancy and that young adolescents and black women strive for weight gains at the upper end of this range. Body mass index is an index that relates weight to stature (BMI = weight/height^2). Normal BMI was defined as 19.8 to 26.0 kilograms per meter^2. Findings exclude data for California, Louisiana, Nebraska, and Oklahoma, which did not require reporting of weight gain during pregnancy.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System.

Figure 24. Infant mortality rates, by race, 1955 and 1973–87

Year	All races	White	American Indian and Alaska Native
		Per 1,000 live births	
1955	26.4	23.6	62.7
1973	17.7	15.8	22.2
1974	16.7	14.8	21.5
1975	16.1	14.2	21.8
1976	15.2	13.3	20.7
1977	14.1	12.3	19.0
1978	13.8	12.0	18.4
1979	13.1	11.4	16.8
1980	12.6	11.0	15.8
1981	11.9	10.5	13.2
1982	11.5	10.1	12.6
1983	11.2	9.7	11.7
1984	10.8	9.4	11.3
1985	10.6	9.3	11.1
1986	10.4	8.9	11.2
1987	10.1	8.6	11.1

NOTE: Data were obtained from U.S. death certificates. Data for American Indians and Alaska Natives for 1955 are for States in which the Indian Health Service had responsibilities for providing health care. Starting in 1972 data were first available for the specific counties in the IHS service areas. Data shown above for 1973 to 1987 are for IHS service areas that include counties containing reservations of Federally recognized tribes and in some cases surrounding counties. Race is identified from the U.S. death certificate. Death certificates are believed to underreport Indian race in some geographic areas. Data for all races and whites are for each year specified; all data for American Indians and Alaska Natives are 3-year cumulative figures centered in the year specified above. The number of American Indian and Alaska Native vital events that occur each year is usually small when categorized by age, geographic location, and other factors. For this population 3-year mortality rates were used to reduce the low frequency effect. The 3-year rates are calculated based on the total number of infant deaths that occurred during the 3-year period under study divided by the total number of live births during these 3 years. This is a moving rate that is calculated every year. The single year specified in the figure and table is the middle of the 3-year period.

SOURCE: Data analyzed by the Indian Health Service, Division of Program Statistics, from data compiled by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System, 1954–56 and 1972–88.

Figure 25. Percent of children 2–5 years of age with height-for-age less than the 5th percentile, by race and ethnicity, 1980–91

Year	Non-Hispanic white	Non-Hispanic black	Hispanic	American Indian	Asian
			Percent		
1980	10.3	10.9	12.0	10.7	22.3
1981	11.1	12.7	13.6	9.8	23.8
1982	11.0	12.9	13.7	11.3	23.8
1983	11.0	12.5	13.3	10.2	20.5
1984	10.5	11.3	12.4	9.5	18.3
1985	10.1	11.0	11.1	8.1	15.5
1986	10.2	11.2	11.0	9.3	14.9
1987	10.0	11.4	10.3	7.7	14.3
1988	9.4	10.8	9.8	7.3	12.9
1989	8.8	10.3	9.4	8.7	11.3
1990	9.2	11.2	9.9	7.6	10.8
1991	8.9	11.0	9.4	8.8	10.7

NOTE: The sample consisted of low-income, high-risk children. Low income was defined as income at or below 185 percent of the Federal poverty income guidelines, the criteria used for participation in the Supplemental Food Program for Women, Infants, and Children (WIC). The criteria for high risk includes certain nutritional and medical risk factors that would make a child eligible for WIC benefits, such as risk for iron deficiency, growth problems, poor diet, or previous poor medical history. At least 95 percent of the sample met the U.S. Bureau of Census' definition of a refugee.

SOURCE: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Pediatric Nutrition Surveillance System.

Figure 26. Life expectancy at birth for males, by race, 1972–74, 1979–81, and 1986–88

Year of birth	All races	White	American Indian and Alaska Native
		Years of life remaining	
1972–74	67.6	68.5	56.3
1979–81	70.0	70.7	62.6
1986–88	71.5	72.2	67.2

NOTE: U.S. death certificate data and the percent distribution of the population by age and sex enumerated during the Decennial Census nearest to the 3-year period specified and mortality experienced during the 3-year period were used to calculate life expectancy. Information for American Indians and Alaska Natives are for persons in IHS service areas that include counties containing reservations of Federally recognized tribes and in some cases surrounding counties. Race is identified from the U.S. death certificates and census data. Death certificates are believed to underreport the Indian race in some geographic areas. Data for all races and white are for 1973, 1980, and 1987; data for American Indians and Alaska Natives are for 1972–74, 1979–81, and 1986–88. The number of American Indian and Alaska Native vital events that occur each year is usually small when categorized by age, geographic location, and other factors. For this population, 3-year mortality rates were used to reduce the low frequency effect. The 3-year life expectancy computation is calculated based on the total number of deaths that occurred during the 3-year period under study and the total number of persons in the population at risk of dying during these 3 years.

SOURCE: Data analyzed by the Indian Health Service, Division of Program Statistics, from data compiled by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System.

Figure 27. Life expectancy at birth for females, by race, 1972–74, 1979–81, and 1986–88

Year of birth	All races	White	American Indian and Alaska Native
		Years of life remaining	
1972–74	75.3	76.1	66.5
1979–81	77.4	78.1	72.5
1986–88	78.4	78.9	76.2

NOTE: U.S. death certificate data and the percent distribution of the population by age and sex enumerated during the Decennial Census nearest to the 3-year period specified and mortality experienced during the 3-year period were used to calculate life expectancy. Information for American Indians and Alaska Natives are for persons in IHS service areas that include counties containing reservations of Federally recognized tribes and in some cases surrounding counties. Race is identified from the U.S. death certificates and census data. Death certificates are believed to underreport the Indian race in some geographic areas. Data for all races and whites are for 1973, 1980, and 1987; data for American Indians and Alaska Natives are for 1972–74, 1979–81, and 1986–88. The number of American Indian and Alaska Native vital events that occur each year is usually small when categorized by age, geographic location, and other factors. For this population, 3-year mortality rates were used to reduce the low frequency effect. The 3-year life expectancy computation is calculated based on the total number of deaths that occurred during the 3-year period under study and the total number of persons in the population at risk of dying during these 3 years.

SOURCE: Data analyzed by the Indian Health Service, Division of Program Statistics, from data compiled by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System.

Figure 28. Mortality rates for leading causes of death for American Indians and Alaska Natives, 1986–88

Cause of death	Deaths per 100,000 population
Diseases of the heart	120.9
Accidents	93.2
Malignant neoplasms	73.5
Cerebrovascular diseases	24.5
Chronic liver disease and cirrhosis	22.2
Diabetes mellitus	21.4

NOTE: Data were obtained from U.S. death certificates. Information for American Indians and Alaska Natives are for persons in IHS service areas that include counties containing reservations of Federally recognized tribes and in some cases the surrounding counties. Race is identified from the U.S. death certificates. Death certificates are believed to underreport Indian race in some geographic areas. The number of American Indian and Alaska Native vital events that occur each year is usually small when categorized by age, geographic location, and other factors. Three-year mortality rates were used to reduce the low frequency effect. The 3-year rates are calculated based on the total number of deaths that occurred during the 3-year period under study divided by the total population at risk of dying during these 3 years.

SOURCE: Data analyzed by the Indian Health Service, Division of Program Statistics, from data compiled by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Registration System.

Figure 29. Dietary changes for selected foods, 1977–78 and 1989–90

Food groups	One day's intakes		Percent change in average amounts consumed in one day
	1977–78	1989–90	
	Grams		
Meats, poultry, and fish	207	185	–11
Mixtures	69	83	+20
Beef	52	27	–48
Pork	20	12	–40
Frankfurters, sausages, and luncheon meats	20	18	–10
Milk products	318	289	–9
Whole milk	128	83	–35
Lowfat and skim milk	63	140	+122
Eggs	27	20	–26
Grain products	215	267	+24
Mixtures	52	90	+73
Cereals and pastas	49	71	+43
Dark green vegetables	8	11	+38
Carbonated soft drinks	144	178	+24

NOTE: Data from the 1977–78 Nationwide Food Consumption Survey and the 1989–90 Continuing Survey of Food Intakes by Individuals are for all age groups. The data represent percent changes in average intakes for all men, women, and children.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Nationwide Food Consumption Survey, 1977–78, and Continuing Survey of Food Intakes by Individuals, 1989–90.

Figure 30. Number of servings of fruits and vegetables adults believe they should consume each day, 1991

Number of servings	Total	Male	Female
	Percent of population		
1 or less	34	45	25
2	32	32	33
3	15	12	18
4	10	7	13
5 or more	8	4	11

SOURCE: Data analyzed by the National Institutes of Health, National Cancer Institute, Division of Cancer Prevention and Control. Five A Day for Better Health Baseline Survey, 1991, sponsored by the National Institutes of Health, National Cancer Institute, and the Produce for Better Health Foundation.

Figure 31. Reported number of servings of fruits and vegetables adults consume each day, 1991

Number of servings	Total	Male	Female
	Percent of population		
Less than 1	4	6	3
1 to less than 2	16	21	11
2 to less than 3	22	22	22
3 to less than 4	20	20	20
4 to less than 5	15	13	17
5 or more	23	18	27

NOTE: Food frequencies were used to measure respondents' intakes of fruits and vegetables.

SOURCE: Data analyzed by the National Institutes of Health, National Cancer Institute, Division of Cancer Prevention and Control. Five A Day for Better Health Baseline Survey, 1991, sponsored by the National Institutes of Health, National Cancer Institute, and the Produce for Better Health Foundation.

Figure 32. Average intakes of total milk products and share of total from selected milk categories: One day's intake, 1977–78 and 1989–90

Food groups	*1977–78*	*1989–90*
	Percent distribution	
Whole milk	40	29
Lowfat and skim milk	20	48
Other fluid milk	19	2
Milk desserts	7	7
Cheese	4	4
Other milk products	10	8
Average intake for one day	318 grams	289 grams

NOTE: Data from the 1977–78 Nationwide Food Consumption Survey and the 1989–90 Continuing Survey of Food Intakes by Individuals are for all age groups.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Nationwide Food Consumption Survey, 1977–78, and Continuing Survey of Food Intakes by Individuals, 1989–90.

Figure 33. Percent of individuals consuming milk and milk products, by income: One day's intake, 1989–90

Food groups	*Low income*	*Middle income*	*High income*
		Percent of individuals	
Total milk and milk products	77	80	81
Cheese	20	27	31
Milk desserts	10	15	14
Lowfat and skim milk	23	36	43
Whole milk	40	28	20

NOTE: Data from the 1989–90 Continuing Survey of Food Intakes by Individuals are for all age groups. Low income was defined as less than 131 percent of the Federal poverty level; middle income was defined as 131–350 percent of the Federal povarty laval; and high income was defined as greater than 350 percent of the Federal poverty level.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989–90

Figure 34. Food group sources of calcium and percent of total calcium among adolescents 11–17 years of age, by Hispanic origin, 1982–84

Food group	*Mexican American*	*Puerto Rican*	*Cuban*
		Percent	
Milk and milk products	61	65	65
Grain products	17	12	12
Grain mixtures	5	9	7
Meats, poultry, and fish	4	5	7
Fruits	2	2	1
Vegetables	5	2	3
Others	6	4	4

NOTE: Data were collected using 24-hour dietary recalls. Grain mixtures includa some mixed dishes that contain dairy products; vegetables include potatoes, dried beans, peas, and soy products; and others include eggs, fats, oils, sugars, sweeteners, and miscellaneous.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 35. Food group sources of calcium and percent of total calcium among adults 18–74 years of age, by Hispanic origin, 1982–84

Food group	Mexican American	Puerto Rican	Cuban
		Percent	
Milk and milk products	49	64	57
Grain products	22	11	14
Grain mixtures	4	5	7
Meats, poultry, and fish	6	7	7
Fruits	2	2	2
Vegetables	8	7	6
Others	8	4	6

NOTE: Data were collected using 24-hour dietary recalls. Grain mixtures include some mixed dishes that contain dairy products; vegetables include potatoes, dried beans, peas, and soy products; and others include eggs, fats, oils, sugars, sweeteners, and miscellaneous.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 36. Apparent annual per capita ethanol consumption, 1977–89

Year	Gallons of all alcoholic beverages
1977	2.64
1978	2.71
1979	2.75
1980	2.76
1981	2.76
1982	2.72
1983	2.69
1984	2.65
1985	2.62
1986	2.58
1987	2.54
1988	2.49
1989	2.43

NOTE: All per capita consumption estimates are based on the total population 14 years of age and over, not specifically on the population of actual drinkers. Although 14 years of age is below the minimum legal drinking age in this country, most survey results indicate that 14-year-olds drink to some extent. Since different alcoholic beverages have different alcohol contents, a proportional estimate of average ethanol content is used to convert the beverage volume into ethanol (pure alcohol). Conversion coefficients are 0.045 for beer, 0.129 for wine, and 0.414 for spirits.

SOURCE: National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Division of Biometry and Epidemiology, Alcohol Epidemiologic Data System.

Figure 37. Percent change in apparent per capita ethanol consumption, 1977–89

Year	Beer	Wine	Spirits	All alcoholic beverages
		Percent of 1977 level		
1977	100.0	100.0	100.0	100.0
1978	102.3	106.9	100.9	102.6
1979	106.2	110.3	100.0	104.2
1980	107.0	117.2	98.1	104.6
1981	107.8	120.7	96.2	104.6
1982	107.0	124.1	92.4	103.0
1983	106.2	124.1	90.6	101.9
1984	104.6	127.6	88.7	100.4
1985	103.1	131.0	84.9	99.2
1986	103.9	134.5	80.2	97.7
1987	103.9	131.0	78.3	96.2
1988	103.1	124.1	75.5	94.3
1989	101.6	117.2	73.6	91.7

NOTE: All per capita consumption estimates are based on the total population 14 years of age and over, not specifically on the population of actual drinkers. Although 14 years of age is below the minimum legal drinking age in this country, most survey results indicate that 14-year-olds drink to some extent. Since different alcoholic beverages have different alcohol contents, a proportional estimate of average ethanol content is used to convert the beverage volume into ethanol (pure alcohol). Conversion coefficients are 0.045 for beer, 0.129 for wine, and 0.414 for spirits.

SOURCE: National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Division of Biometry and Epidemiology, Alcohol Epidemiologic Data System.

Figure 38. Apparent total per capita ethanol consumption in gallons, by State, 1989

State	Gallons
United States average	2.43
Alabama	1.87
Alaska	3.28
Arizona	2.89
Arkansas	1.78
California	2.79
Colorado	2.61
Connecticut	2.55
Delaware	2.91
District of Columbia	4.23
Florida	2.91
Georgia	2.38
Hawaii	2.76
Idaho	2.10
Illinois	2.57
Indiana	2.04
Iowa	1.94
Kansas	1.78
Kentucky	1.76
Louisiana	2.38
Maine	2.45
Maryland	2.55
Massachusetts	2.76
Michigan	2.39
Minnesota	2.44
Mississippi	2.01
Missouri	2.25
Montana	2.57
Nebraska	2.19
Nevada	4.85
New Hampshire	4.38
New Jersey	2.60
New Mexico	2.58
New York	2.36
North Carolina	2.07
North Dakota	2.39
Ohio	2.08
Oklahoma	1.71
Oregon	2.42
Pennsylvania	2.10
Rhode Island	2.70
South Carolina	2.47
South Dakota	2.10
Tennessee	1.91
Texas	2.46
Utah	1.43
Vermont	2.85
Virginia	2.19
Washington	2.46
West Virginia	1.60
Wisconsin	2.97
Wyoming	2.39

NOTE: All per capita consumption estimates are based on the total population 14 years of age and over, not specifically on the population of actual drinkers. Although 14 years of age is below the minimum legal drinking age in this country, most survey results indicate that 14-year-olds drink to some extent. Since different alcoholic beverages have different alcohol contents, a proportional estimate of average ethanol content is used to convert the beverage volume into ethanol (pure alcohol). Conversion coefficients are 0.045 for beer, 0.129 for wine, and 0.414 for spirits.

SOURCE: National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Division of Biometry and Epidemiology, Alcohol Epidemiologic Data System.

Figure 39. Percent change in apparent total per capita ethanol consumption, by State, 1977–89

State	Gallons
United States average	–7.95
Alabama	–4.81
Alaska	–0.91
Arizona	–7.27
Arkansas	7.30
California	–16.49
Colorado	–15.33
Connecticut	–2.35
Delaware	0.00
District of Columbia	–30.73
Florida	–7.56
Georgia	–3.78
Hawaii	–17.03
Idaho	–20.00
Illinois	–11.67
Indiana	–0.49
Iowa	–11.86
Kansas	–5.62
Kentucky	–15.34
Louisiana	–7.98
Maine	–7.76
Maryland	–19.61
Massachusetts	–6.88
Michigan	–13.39
Minnesota	–8.61
Mississippi	–1.99
Missouri	0.00
Montana	–21.40
Nebraska	–15.53
Nevada	–41.03
New Hampshire	–21.46
New Jersey	–3.46
New Mexico	–13.57
New York	–16.10
North Carolina	0.97
North Dakota	–9.62
Ohio	1.92
Oklahoma	–15.79
Oregon	–13.22
Pennsylvania	–9.05
Rhode Island	–8.52
South Carolina	–0.81
South Dakota	–13.33
Tennessee	0.00
Texas	–4.88
Utah	–18.88
Vermont	–20.70
Virginia	–5.02
Washington	–17.48
West Virginia	–15.63
Wisconsin	–11.45
Wyoming	–38.49

NOTE: All per capita consumption estimates are based on the total population 14 years of age and over, not specifically on the population of actual drinkers. Although 14 years of age is below the minimum legal drinking age in this country, most survey results indicate that 14-year-olds drink to some extent. Since different alcoholic beverages have different alcohol contents, a proportional estimate of average ethanol content is used to convert the beverage volume into ethanol (pure alcohol). Conversion coefficients are 0.045 for beer, 0.129 for wine, and 0.414 for spirits.

SOURCE: National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Division of Biometry and Epidemiology, Alcohol Epidemiologic Data System.

Figure 40. Alcohol consumption among males, by race, 1988

Drinking level	Total	White	Black
		Percent	
Abstainer	37	35	48
Light	26	26	21
Moderate	25	26	21
Heavy	12	13	10

NOTE: Drinking levels of individuals are defined as: abstainer: less than 12 drinks per year; light drinker: 3 drinks per week to 12 or more drinks per year; moderate drinker: 4–13 drinks per week; and heavy drinker: two or more drinks per day or 14 or more drinks per week. A drink is defined as a 12-ounce can or bottle of beer, a 4-ounce glass of wine, or a 1-ounce shot of distilled spirits. The total category includes individuals of all races. Data from the other race category are not shown because individuals in this category are racially diverse with divergent drinking patterns, making aggregation of the data meaningless. Numbers of American Indians, Asians, and other ethnic groups are too small to produce reliable national estimates for these individual racial groups. Likewise, the number of individuals of Hispanic origin is too small to produce reliable estimates of drinking levels among black Hispanics relative to non-Hispanic blacks and white Hispanics compared with non-Hispanic whites.

SOURCE: Data submitted by the National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism. Alcohol Supplement of the National Health Interview Survey, 1988, sponsored by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, and National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism.

Figure 41. Alcohol consumption among females, by race, 1988

Drinking level	Total	White	Black
		Percent	
Abstainer	60	57	72
Light	24	25	18
Moderate	13	14	8
Heavy	3	4	2

NOTE: Drinking levels of individuals are defined as: abstainer: less than 12 drinks per year; light drinker: 3 drinks per week to 12 or more drinks per year; moderate drinker: 4–13 drinks per week; and heavy drinker: two or more drinks per day or 14 or more drinks per week. A drink is defined as a 12-ounce can or bottle of beer, a 4-ounce glass of wine, or a 1-ounce shot of distilled spirits. The total category includes individuals of all races. Data from the other race category are not shown because individuals in this category are racially diverse with divergent drinking patterns, making aggregation of the data meaningless. Numbers of American Indians, Asians, and other ethnic groups are too small to produce reliable national estimates for these individual racial groups. Likewise, the number of individuals of Hispanic origin is too small to produce reliable estimates of drinking levels among black Hispanics relative to non-Hispanic blacks and white Hispanics compared with non-Hispanic whites.

SOURCE: Data submitted by the National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism. Alcohol Supplement of the National Health Interview Survey, 1988, sponsored by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, and National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism.

Figure 42. Mean food energy intakes, by sex and age: One day's intake, 1989–90

Sex and age	Food energy in kilocalories
Children	
1–2 years	1,208
3–5 years	1,498
Male	
6–11 years	1,911
12–19 years	2,504
20–29 years	2,508
30–39 years	2,243
40–49 years	2,134
50–59 years	2,123
60–69 years	1,859
70 years and over	1,715
Female	
6–11 years	1,813
12–19 years	1,672
20–29 years	1,669
30–39 years	1,652
40–49 years	1,513
50–59 years	1,435
60–69 years	1,504
70 years and over	1,395

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989–90.

Figure 43. Age-adjusted distribution of food energy intakes from carbohydrate, protein, fat, saturated fat, and alcohol for Hispanic males 20–74 years of age, 1982–84

Nutrient	*Mexican American*	*Puerto Rican*	*Cuban*
		Percent	
Carbohydrate	44.1	47.3	45.5
Protein	17.5	16.8	18.9
Total fat	35.4	32.9	32.5
Saturated fat	12.7	11.5	12.1
Other fat	22.7	21.4	20.4
Alcohol	4.1	3.3	3.4

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 44. Age-adjusted distribution of food energy intakes from carbohydrate, protein, fat, saturated fat, and alcohol for Hispanic females 20–74 years of age, 1982–84

Nutrient	*Mexican American*	*Puerto Rican*	*Cuban*
		Percent	
Carbohydrate	47.4	49.1	48.3
Protein	17.1	17.3	18.5
Total fat	35.8	33.3	32.9
Saturated fat	12.7	12.0	11.9
Other fat	23.1	21.3	21.0
Alcohol	1.0	0.9	0.9

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 45. Food energy from dietary fat for selected years, 1965–88

	NFCS, 1965–66	*NHANES I, 1971–74*	*NHANES II, 1976–80*	*NFCS, 1977–78*	*CSFII, 1985–86*	*NFCS, 1987–88*
Percent of food energy from fat	42.1	36.5	36.1	40.1	36.0	36.3

NOTE: Data from the Nationwide Food Consumption Survey (NFCS) are for all age groups; data from the Continuing Survey of Food Intakes by Individuals (CSFII) are for children 1–5 years of age and men and women 19–50 years of age; and data from the National Health and Nutrition Examination Survey (NHANES) are for individuals 20–74 years of age. The individual response rate for 1987–88 NFCS was 31 percent. The procedures used to calculate population estimates in NFCS 1987–88 have limited the potential for bias to the extent possible; however, the possibility of such bias cannot be disregarded.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Nationwide Food Consumption Survey, 1965–66, 1977–78, and 1987–88, Continuing Survey of Food Intakes by Individuals, 1985–86, and the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey, 1971–74 and 1976–80.

Figure 46. Dietary fat intakes of military personnel for selected years, 1919–90

Year	*Fat as a percent of food energy intakes*
Pre-1985 initiatives	
1919	29.0
1952	46.0
1953	48.6
1966	45.5
1971	42.5
1976	41.8
1977	42.1
Post-1985 initiatives	
1985	37.6
1986	38.4
1987	38.2
1988	34.0
1990	35.0

NOTE: Figures reported represent average total dietary intakes of fat consumed by military personnel in military dining facilities.

SOURCE: U.S. Department of Defense, U.S. Army Research Institute of Environmental Medicine, Military Nutrition Division, selected years, 1919–90.

Figure 47. Mean cholesterol intakes for males 6 months–74 years of age, by Hispanic origin and age, 1982–84

Age	Mexican American	Puerto Rican	Cuban
		Milligrams	
0.5–2 years	284	229	289
3–5 years	310	314	310
6–11 years	346	351	325
12–15 years	430	407	389
16–19 years	525	496	489
20–29 years	514	480	471
30–39 years	494	361	412
40–49 years	460	405	369
50–59 years	458	393	364
60–74 years	441	306	279

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 48. Mean cholesterol intakes for females 6 months–74 years of age, by Hispanic origin and age, 1982–84

Age	Mexican American	Puerto Rican	Cuban
		Milligrams	
0.5–2 years	285	241	–
3–5 years	291	278	–
6–11 years	294	348	279
12–15 years	300	332	372
16–19 years	286	355	281
20–29 years	336	329	266
30–39 years	327	290	295
40–49 years	303	271	242
50–59 years	297	249	319
60–74 years	302	200	211

NOTE: Cholesterol intakes for Cuban females under 6 years of age are not presented because of insufficient sample size, and are denoted by a dash in the table.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 49. Mean intakes of selected nutrients as a percent of the 1989 Recommended Dietary Allowances for adults 20 years of age and over: One day's intake, 1989–90

Nutrient	Percent of 1989 Recommended Dietary Allowances	
	Male	Female
Vitamin B_6	95.6	86.8
Vitamin E	94.6	86.2
Calcium	100.4	74.8
Iron	160.7	92.4
Magnesium	82.7	78.9
Zinc	87.5	74.2

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989–90.

Figure 50. Median carotenoid intakes for males 6 months–74 years of age, by Hispanic origin and age, 1982–84

Age	*Mexican American*	*Puerto Rican*	*Cuban*
	Median retinol equivalents		
0.5–2 years	121	148	152
3–5 years	116	126	73
6–11 years	143	115	111
12–15 years	134	91	107
16–19 years	158	138	211
20–29 years	196	159	122
30–39 years	189	88	148
40–49 years	148	177	133
50–59 years	157	171	158
60–74 years	115	92	132

NOTE: Carotenoid values are based on beta-carotene and other carotenes with provitamin A activity. Median carotenoid intakes are reported since the distribution of intakes is skewed to the right.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 51. Median carotenoid intakes for females 6 months–74 years of age, by Hispanic origin and age, 1982–84

Age	*Mexican American*	*Puerto Rican*	*Cuban*
	Median retinol equivalents		
0.5–2 years	130	116	152
3–5 years	123	104	78
6–11 years	136	114	91
12–15 years	108	102	83
16–19 years	126	83	78
20–29 years	137	107	92
30–39 years	167	91	90
40–49 years	141	94	113
50–59 years	150	118	116
60–74 years	146	115	114

NOTE: Carotenoid values are based on beta-carotene and other carotenes with provitamin A activity. Median carotenoid intakes are reported since the distribution of intakes is skewed to the right.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 52. Mean iron levels in the diets of eight age-sex groups compared with the 1989 Recommended Dietary Allowances, 1982–89

Age and sex	*Intake*	*Recommended Dietary Allowances*
Children	Milligrams per day	
0.5 to less than 1 year	12.0	10
2 years	8.9	10
Male		
14–16 years	18.1	12
25–30 years	16.2	10
60–65 years	15.1	10
Female		
14–16 years	11.0	15
25–30 years	10.7	15
60–65 years	10.6	10

NOTE: Representative diets for the selected age-sex groups were developed based on national food consumption data.

SOURCE: Food and Drug Administration, Center for Food Safety and Applied Nutrition, Total Diet Study.

Figure 53. Percent contributions of food groups to the daily iron intakes of teenagers and adults, for selected age groups, 1982–89

Food group	*Percent of daily iron intake*
Total	100.8
Grain products	38.5
Meats, poultry, and fish	21.2
Vegetables	12.0
Mixed dishes	10.5
Desserts	7.2
Eggs	3.8
Beverages	3.0
Fruits	2.5
Dairy products	1.0
Nuts	0.8
Sweeteners	0.3
Fats and sauces	0.0

NOTE: Representative diets for the selected age-sex groups were developed based on national food consumption data.

SOURCE: Food and Drug Administration, Center for Food Safety and Applied Nutrition, Total Diet Study.

Figure 54. Mean iron intakes for males 6 months–74 years of age, by Hispanic origin and age, 1982–84

Age	*Mexican American*	*Puerto Rican*	*Cuban*
		Milligrams	
0.5–2 years	9.3	12.0	15.5
3–5 years	11.1	13.5	11.6
6–11 years	14.1	16.2	13.7
12–15 years	15.5	20.0	18.5
16–19 years	17.9	20.6	23.2
20–29 years	17.5	18.5	16.2
30–39 years	17.4	15.1	16.9
40–49 years	15.5	13.9	15.7
50–59 years	15.3	13.6	16.2
60–74 years	12.9	13.3	13.1

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 55. Mean iron intakes for females 6 months–74 years of age, by Hispanic origin and age, 1982–84

Age	*Mexican American*	*Puerto Rican*	*Cuban*
		Milligrams	
0.5–2 years	9.2	14.1	–
3–5 years	10.5	10.9	–
6–11 years	12.2	13.5	12.1
12–15 years	11.3	13.9	13.5
16–19 years	10.8	14.0	13.3
20–29 years	11.0	12.0	10.0
30–39 years	11.0	10.7	11.6
40–49 years	10.5	10.5	9.7
50–59 years	9.8	9.9	10.4
60–74 years	9.7	7.8	10.3

NOTE: Iron intakes for Cuban females under 6 years of age are not presented because of insufficient sample size, and are denoted by a dash in the table.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 56. Mean calcium intakes for males 11–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

Age	Non-Hispanic white	Non-Hispanic black	Mexican American	Puerto Rican	Cuban
			Milligrams per day		
11–17 years	1,332	887	1,195	1,255	1,185
18–39 years	1,092	797	985	922	959
40–54 years	868	563	742	699	729
55–74 years	785	628	743	701	792

NOTE: Data for non-Hispanic white and non-Hispanic black subjects were from the 1976–80 National Health and Nutrition Examination Survey (NHANES II), which was a national probability sample. Data for Mexican Americans, Puerto Ricans, and Cubans were from the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES), which was not a national probability sample.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80, and Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 57. Mean calcium intakes for females 11–74 years of age, by age, race, and ethnicity, 1976–80 and 1982–84

Age	Non-Hispanic white	Non-Hispanic black	Mexican American	Puerto Rican	Cuban
			Milligrams per day		
11–17 years	842	700	853	886	774
18–39 years	642	467	650	601	615
40–54 years	617	423	561	583	584
55–74 years	564	460	582	557	616

NOTE: Data for non-Hispanic white and non-Hispanic black subjects were from the 1976–80 National Health and Nutrition Examination Survey (NHANES II), which was a national probability sample. Data for Mexican Americans, Puerto Ricans, and Cubans were from the 1982–84 Hispanic Health and Nutrition Examination Survey (HHANES), which was not a national probability sample.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Examination Statistics, National Health and Nutrition Examination Survey II, 1976–80, and Hispanic Health and Nutrition Examination Survey, 1982–84.

Figure 58. Mean daily use of vitamin and mineral supplements by males 18 years of age and over who reported taking supplements, 1980 and 1986

Supplement use	1980	1986
	Percent	
Light	43	50
Moderate	13	14
Heavy	30	26
Very heavy	14	11

SOURCE: Data analyzed by the Food and Drug Administration, Consumer Studies Branch. Vitamin and Mineral Supplement Use Survey, 1980, conducted by the Food and Drug Administration, Center for Food Safety and Applied Nutrition. National Health Interview Survey on Vitamin and Mineral Supplements, 1986, sponsored by Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, and Food and Drug Administration, Center for Food Safety and Applied Nutrition.

Figure 59. Mean daily use of vitamin and mineral supplements by females 18 years of age and over who reported taking supplements, 1980 and 1986

Supplement use	1980	1986
	Percent	
Light	41	54
Moderate	18	11
Heavy	27	23
Very heavy	14	12

SOURCE: Data analyzed by the Food and Drug Administration, Consumer Studies Branch. Vitamin and Mineral Supplement Use Survey, 1980, conducted by the Food and Drug Administration, Center for Food Safety and Applied Nutrition. National Health Interview Survey on Vitamin and Mineral Supplements, 1986, sponsored by Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, and Food and Drug Administration, Center for Food Safety and Applied Nutrition.

Figure 60. Frequent nutrient supplement use among Boston elders 60 years of age and over, 1981–84

Nutrient	*Male*	*Female*
	Percent of frequent users	
Vitamin C	29	37
Vitamin E	24	36
Thiamin, Riboflavin, Niacin	24	32
Vitamin B_{12}	23	33
Vitamin B_6	22	33
Vitamin A	23	29
Vitamin D	23	28
Folic acid	18	20
Iron	15	20
Zinc	15	17
Calcium	11	16
Magnesium	10	14
Phosphorus	10	10

NOTE: Nutrients were taken as a single supplement or as part of a combination product. Frequent use was defined as the regular ingestion of supplements four or more times per week. Megadose levels were defined as intakes equal to or greater than 10 times the Recommended Dietary Allowances.

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Human Nutrition Research Center on Aging at Tufts University, Boston Nutritional Status Survey, 1981–84.

Figure 61. Federal expenditures, in real 1992 dollars, spent on food assistance and nutrition education programs, 1975–92.

Fiscal year	*Real 1992 dollars in billions*
1975	15.7
1976	18.4
1977	17.8
1978	17.2
1979	19.3
1980	22.6
1981	24.5
1982	23.0
1983	26.8
1984	26.2
1985	26.0
1986	25.5
1987	24.8
1988	24.7
1989	24.0
1990	25.3
1991	28.7
1992	33.0

NOTE: Expenditures are expressed in real 1992 dollars in billions, adjusted by the Consumer Price Index for all urban consumers for total food. The 15 domestic food assistance and nutrition education programs administered by the Food and Nutrition Service are: Food Stamp Program; National School Lunch Program; School Breakfast Program; Child and Adult Care Food Program; Summer Food Service Program; Special Milk Program; Nutrition Education and Training Program; Special Supplemental Food Program for Women, Infants, and Children; Commodity Supplemental Food Program; Farmers' Market Coupon Program; The Emergency Food Assistance Program; Nutrition Assistance Program for Puerto Rico; Food Distribution Program on Indian Reservations; Commodities for Soup Kitchens; and Nutrition Programs for the Elderly.

SOURCE: U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis and Evaluation.

Figure 62. Average monthly participation in the three largest domestic food assistance programs, 1975–92.

Fiscal year	Food Stamp Program	National School Lunch Program	Special Supplemental Food Program for Women, Infants, and Children
	Number of individuals in millions		
1975	16.3	24.9	0.3
1976	17.0	25.6	0.5
1977	15.6	26.2	0.8
1978	14.4	26.7	1.2
1979	15.9	27.0	1.5
1980	19.2	26.6	1.9
1981	20.6	25.8	2.1
1982	20.4	22.9	2.2
1983	21.6	23.0	2.5
1984	20.9	23.4	3.0
1985	19.9	23.6	3.1
1986	19.4	23.7	3.3
1987	19.1	23.9	3.4
1988	18.6	24.2	3.6
1989	18.8	24.2	4.1
1990	20.1	24.1	4.5
1991	22.6	24.2	4.9
1992	25.4	24.6	5.4

NOTE: For consistency, the Food Stamp Program data excludes Puerto Rico for all the years shown. In July 1982 Puerto Rico replaced the Food Stamp Program with the Puerto Rico Nutrition Assistance Program. The 15 domestic food assistance and nutrition education programs administered by the Food and Nutrition Service are: Food Stamp Program; National School Lunch Program; School Breakfast Program; Child and Adult Care Food Program; Summer Food Service Program; Special Milk Program; Nutrition Education and Training Program; Special Supplemental Food Program for Women, Infants, and Children; Commodity Supplemental Food Program; Farmers' Market Coupon Program; The Emergency Food Assistance Program; Nutrition Assistance Program for Puerto Rico; Food Distribution Program on Indian Reservations; Commodities for Soup Kitchens; and Nutrition Programs for the Elderly.

SOURCE: U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis and Evaluation.

Figure 63. Food as a share of total expenditures, by race and ethnicity, 1990–91

Expenditure components	Non-Hispanic white	Non-Hispanic black	Hispanic
	Share of total expenditures		
Total food	14.4	16.4	17.8
Food at home	8.5	11.6	11.8
Food away from home	6.0	4.8	6.0
	Expenditure levels in dollars		
Total food	4,402	3,186	4,366
Food at home	2,578	2,258	2,890
Food away from home	1,825	927	1,476
Total expenditures	30,474	19,398	24,488

NOTE: A consumer unit is defined as a single person living alone or sharing a household with others, but who is financially independent; members of a sample household related by blood, marriage, adoption, or other legal arrangement; or two or more persons living together who share responsibility for at least two out of the three major types of expenses (food, housing, and other expenses).

SOURCE: Department of Labor, Bureau of Labor Statistics, Division of Consumer Expenditures, Consumer Expenditure Survey.

Figure 64. Shares of food at home, by race and ethnicity, 1990–91

Food groups	Non-Hispanic white	Non-Hispanic black	Hispanic
	Shares of food at home		
Cereal and bakery products	15.3	13.9	13.6
Meats, poultry, fish, and eggs	25.6	36.6	29.3
Dairy products	11.7	8.6	11.7
Fruits	8.7	8.3	9.7
Vegetables	7.4	7.6	8.3
Other food at home	22.6	17.7	18.8
Nonalcoholic beverages	8.6	7.3	8.6

NOTE: A consumer unit is defined as a single person living alone or sharing a household with others, but who is financially independent; members of a sample household related by blood, marriage, adoption, or other legal arrangement; or two or more persons living together who share responsibility for at least two out of the three major types of expenses (food, housing, and other expenses). Other food at home includes sugar, fats and oils, and miscellaneous foods such as frozen food, soups, and potato chips.

SOURCE: Department of Labor, Bureau of Labor Statistics, Division of Consumer Expenditures, Consumer Expenditure Survey.

Figure 65. Annual money value of meats, poultry, and fish purchased by households, by income level, 1977–78 and 1987–88

Food group and year	Income quintile				
	First	Second	Third	Fourth	Fifth
	Dollars				
Meats:					
1977–78	334	351	381	426	479
1987–88	244	245	261	284	298
Poultry and fish:					
1977–78	108	110	111	121	165
1987–88	102	102	124	143	191

NOTE: Household food consumption data are derived from household surveys that measure food used at home. Food at home is defined as food and beverages (alcoholic and nonalcoholic) from the household food supplies "used" during the 7 days before the survey interview. This includes food and beverages eaten at home by members or guests, carried from the home in packed meals, and leftovers thrown away or fed to pets.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division, Nationwide Food Consumption Survey, 1977–78 and 1987–88.

Figure 66. Annual household use of meats, poultry, and fish, by income level, 1977–78 and 1987–88

Food group and year	Income quintile				
	First	Second	Third	Fourth	Fifth
	Pounds per person				
Meats:					
1977–78	170	172	175	187	194
1987–88	150	143	139	143	134
Poultry and fish:					
1977–78	75	69	68	67	82
1987–88	83	78	85	86	98

NOTE: Household food consumption data are derived from household surveys that measure food used at home. Food at home is defined as food and beverages (alcoholic and nonalcoholic) from the household food supplies "used" during the 7 days before the survey interview. This includes food and beverages eaten at home by members or guests, carried from the home in packed meals, and leftovers thrown away or fed to pets.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division, Nationwide Food Consumption Survey, 1977–78 and 1987–88.

Figure 67. Changes in the monthly cost of the Thrifty Food Plan, 1982–92

Month	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Cost in dollars										
January	249.4	251.1	264.5	267.3	273.4	283.0	293.7	314.5	341.1	354.0	354.7
February	252.4	252.4	269.1	271.1	270.6	284.7	292.9	316.6	344.2	352.6	356.0
March	251.2	254.5	268.5	270.8	270.3	284.5	292.6	318.9	343.5	353.5	358.5
April	251.5	256.2	267.1	270.4	271.3	285.6	294.0	321.1	341.0	357.4	358.8
May	253.2	257.0	264.0	268.2	272.2	287.9	295.6	323.8	340.1	357.0	355.2
June	255.7	256.5	264.4	268.5	271.9	290.4	298.1	324.6	342.2	360.1	355.5
July	255.8	255.5	265.7	268.6	275.4	289.2	302.0	326.3	345.1	356.1	–
August	252.9	255.1	267.4	267.4	279.2	288.7	306.1	326.6	345.6	353.4	–
September	252.2	255.4	265.0	266.2	278.4	288.7	308.7	324.7	345.2	352.1	–
October	250.7	254.5	264.4	265.7	277.8	287.4	308.1	325.1	345.8	349.5	–
November	249.9	253.8	263.9	267.4	278.5	287.6	307.1	326.7	347.6	351.5	–
December	250.0	256.3	264.7	270.5	278.9	290.6	309.0	328.2	347.1	352.6	–

NOTE: The costs given are for a family of four, including two adults 20–50 years of age and two school-age children 6–8 and 9–11 years of age. Estimates for the Thrifty Food Plan are computed from quantities of foods published in *Family Economics Review*, 1984, no 1. The cost of the Thrifty Food Plan is estimated by updating prices paid by households surveyed in 1977–78 in USDA's Nationwide Food Consumption Survey of Food Consumption in Low-Income Households. The survey prices are adjusted to current levels using information released monthly by the Bureau of Labor Statistics. Dashes denote data not available.

SOURCE: U.S. Deparment of Agriculture, Human Nutrition Information Service.

Figure 68. Awareness of health problems related to dietary components, by race, 1989

Nutrient	Race	
	White	Black
	Percent of female main meal planners and preparers	
Salt or sodium	89	90
Cholesterol	91	76
Fat	81	71
Saturated fat	64	39
Fiber	57	36

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Diet and Health Knowledge Survey, 1989.

Figure 69. Trends in awareness of a link between sodium intakes and hypertension, by educational level, 1978–90

Year	Educational level		
	Less than 12 years	12 years	More than 12 years
	Percent		
1978	10	13	19
1982	34	39	48
1986	37	43	53
1988	36	47	57
1990	27	39	51

NOTE: Data indicate the percent of respondents who identified sodium or salt as things people eat or drink that might be related to high blood pressure.

SOURCE: Food and Drug Administration, Consumer Studies Branch, Health and Diet Survey.

Figure 70. Trends in awareness of a link between fiber intakes and cancer, by educational level, 1978–90

Year	Educational level		
	Less than 12 years	12 years	More than 12 years
	Percent		
1978	1	3	8
1983	1	5	15
1986	18	27	41
1988	15	21	36
1990	9	14	30

NOTE: Data indicate the percent of respondents who identified fiber, roughage, whole grain cereals, or bran as things people eat or drink that might help prevent cancer.

SOURCE: Food and Drug Administration, Consumer Studies Branch, Health and Diet Survey.

Figure 71. Percent of female main meal planners and preparers who rated dietary guidance as highly important to them, by age, 1989

Selected dietary guidelines	Age		
	15–29 years	30–49 years	50 years and over
	Percent		
Avoid too much fat	42	39	50
Avoid too much saturated fat	56	70	72
Avoid too much cholesterol	58	73	76

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Diet and Health Knowledge Survey, 1989.

Figure 72. Visits to non-Federal office-based physicians, by selected nutrition-related services and patient's sex, 1989–90

Services	Male	Female
	Percent of office visits	
Cholesterol test	3.5	3.7
Weight reduction counseling	5.1	7.1
Cholesterol reduction counseling	3.5	2.9

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Care Statistics, National Ambulatory Medical Care Survey.

Figure 73. Visits to non-Federal office-based physicians, by selected nutrition-related services and physician specialty, 1989–90

Physician specialty	Cholesterol test	Weight reduction counseling	Cholesterol reduction counseling
		Percent	
General and family practice	30.9	42.3	35.5
Internal medicine	36.5	28.6	37.2
Obstetrics and gynecology	8.9	6.6	4.6
Cardiovascular disease	8.0	4.7	9.9
All other	15.7	17.8	12.8

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Care Statistics, National Ambulatory Medical Care Survey.

Figure 74. Trends in sodium avoidance: Self-prescribed and doctor-recommended diets, 1982–90

Year	Self-prescribed diets	Doctor-recommended diets
	Percent	
1982	26	12
1986	31	12
1988	31	13
1990	25	15

SOURCE: Food and Drug Administration, Consumer Studies Branch, Health and Diet Survey.

Figure 75. Trends in dieting to lower blood cholesterol: Self-prescribed and doctor-recommended diets, 1983–90

Year	Self-prescribed diets	Doctor-recommended diets
	Percent	
1983	11	3
1986	19	4
1988	22	8
1990	15	9

SOURCE: Food and Drug Administration, Consumer Studies Branch, Health and Diet Survey.

Figure 76. Foods adults believe they should eat or drink more of to help prevent cancer, for the total population and by educational level, 1987

Educational level	Vegetables	Whole grains and fiber	Fruit	Lower fat meats
		Percent		
Total population	44.9	27.6	24.6	10.3
Less than 12 years	40.7	12.8	19.6	9.1
12 years	43.4	23.3	23.6	10.0
More than 12 years	48.0	37.6	27.7	11.2

SOURCE: Data submitted by the National Institutes of Health, National Cancer Institute. National Health Interview Survey Cancer Risk Factors Supplement (Cancer Control), 1987, sponsored by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics and National Institutes of Health, National Cancer Institute, Division of Cancer Prevention and Control.

Figure 77. Foods adults believe they should eat or drink less of to help prevent cancer, for the total population and by educational level, 1987

Educational level	Higher fat meats	Fats	Alcohol	Sweets and snacks	Additives
			Percent		
Total population	27.8	27.5	12.5	10.6	9.0
Less than 12 years	22.4	21.4	12.4	8.6	4.6
12 years	26.4	26.0	11.8	10.3	8.4
More than 12 years	31.2	31.6	13.0	11.6	11.4

SOURCE: Data submitted by the National Institutes of Health, National Cancer Institute. National Health Interview Survey Cancer Risk Factors Supplement (Cancer Control), 1987, sponsored by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics and National Institutes of Health, National Cancer Institute, Division of Cancer Prevention and Control.

Figure 78. Percent of private worksites with 50 or more employees with nutrition education activities, by size, 1985 and 1992

Number of employees at worksite	1985	1992
	Percent	
50–99	8.6	22.1
100–249	19.8	37.5
250–749	21.9	46.7
750 or more	48.0	77.6

SOURCE: Department of Health and Human Services, Office of Disease Prevention and Health Promotion, National Survey of Worksite Health Promotion Activities, 1985 and 1992.

Figure 79. Percent of private worksites with 50 or more employees with weight management activities, by size, 1985 and 1992

Number of employees at worksite	1985	1992
	Percent	
50–99	8.1	14.2
100–249	13.5	28.2
250–749	22.9	48.0
750 or more	48.8	77.9

SOURCE: Department of Health and Human Services, Office of Disease Prevention and Health Promotion, National Survey of Worksite Health Promotion Activities, 1985 and 1992.

Figure 80. Perceived compared with actual weight status of female main meal planners and preparers, 1989

Actual weight status	Perceived weight status		
	Overweight	Underweight	About right
	Percent		
Underweight	7	26	66
Normal weight	37	3	60
Moderately overweight	88	1	11
Severely overweight	94	0	6

NOTE: To determine actual weight status, self-reported height and weight were used to calculate body mass index (BMI). BMI is an index that relates weight to stature (BMI = weight/height^2). The categories for actual weight status were derived from 1976–80 National Health and Nutrition Examination Survey (NHANES II) population-based BMI cutpoints for weight status of women 20–29 years of age, published in M. Rowland: A nomogram for computing body mass index, *Dietetic Currents* 16(2):5–12, 1989. These categories and cutpoints were as follows: underweight = BMI less than 19.1; normal weight = BMI 19.1–27.2; overweight = BMI 27.3–32.2; severely overweight = BMI 32.3 and over. The cutpoints for underweight, overweight, and severely overweight are based on the 15th, 85th, and 95th percentiles, respectively.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Diet and Health Knowledge Survey, 1989, and the Continuing Survey of Food Intakes by Individuals, 1989.

Figure 81. Female main meal planners' and preparers' agreement with a statement about ability to change body weight, by race, 1989

Rating	White	Black
	Percent	
1 Strongly disagree	31	31
2	17	15
3	12	4
4	19	13
5	9	9
6 Strongly agree	12	29

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Diet and Health Knowledge Survey, 1989.

Figure 82. Body mass index of females 20–49 years of age, by hours of television usually watched per day, 1989

Body mass index (BMI)	Hours of television usually watched per day		
	1 or less	2–3	4 or more
	Kilograms per meter^2		
Mean BMI	23.2	25.2	26.1

NOTE: Measures of body weight, height, and television viewing habits were self-reported.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989.

Figure 83. Body mass index of females 20–49 years of age, by leisure time activity levels, 1989

Body mass index (BMI)	Levels of leisure time physical activity		
	Light	Moderate	Heavy
	Kilograms per meter^2		
Mean BMI	25.3	24.8	22.3

NOTE: Measures of body weight, height, and activity level were self-reported. Heavy activities include running, playing tennis, or swimming 3 or more times per week; moderate activities include steady walking or other moderate activities performed 3 or more times per week, or rigorous activities performed 1–2 times per week; light activities include golfing, taking a stroll, or doing nonvigorous activities occasionally.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989.

Figure 84. Mean daily intakes of total dietary fiber for females 20–49 years of age, by leisure time activity levels, 1989

Total dietary fiber	*Levels of leisure time physical activity*		
	Light	*Moderate*	*Heavy*
		Grams	
Mean daily intakes	11.6	12.2	15.2

NOTE: Measures of leisure time activity levels were self-reported. Heavy activities include running, playing tennis, or swimming 3 or more times per week; moderate activities include steady walking or other moderate activities performed 3 or more times per week, or rigorous activities performed 1–2 times per week; light activities include golfing, taking a stroll, or doing nonvigorous activities occasionally.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989.

Figure 85. Hours of television usually watched per day for females 20–49 years of age, by leisure time activity levels, 1989

Time watching television	*Levels of leisure time physical activity*		
	Light	*Moderate*	*Heavy*
Hours	2.6	2.3	1.8

NOTE: Measures of leisure time activity levels were self-reported. Heavy activities include running, playing tennis, or swimming 3 or more times per week; moderate activities include steady walking or other moderate activities performed 3 or more times per week, or rigorous activities performed 1–2 times per week; light activities include golfing, taking a stroll, or doing nonvigorous activities occasionally.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service, Continuing Survey of Food Intakes by Individuals, 1989.

Figure 86. Comparing two products to identify differences in nutrient content using a variety of food label formats, 1992

Label format	*Relative score*
Control	100
Control with daily value	98
Percent with daily value	96
Percent without daily value	96
Adjective	91
Grouping	98
Highlighting	96

NOTE: Relative scores for each task were calculated such that the best format received 100 percent and other formats were scored in relation to the best format.

SOURCE: Food and Drug Administration, Consumer Studies Branch, Food Label Format Study 2, 1991.

Figure 87. Ability to determine which nutrients to eat more of or less of assuming the person has already eaten three servings of the food, 1992

Label format	*Relative score*
Control	73
Control with daily value	78
Percent with daily value	100
Percent without daily value	100
Adjective	93
Grouping	79
Highlighting	76

NOTE: Relative scores for each task were calculated such that the best format received 100 percent and other formats were scored in relation to the best format.

SOURCE: Food and Drug Administration, Consumer Studies Branch, Food Label Format Study 2, 1991.

Figure 88. Adequacy of current methods for nutrient labeling measurements, 1992
(See this figure in Section IV, page 77 under **Nutrition Labelling and Food Composition**)

Figure 89. Carbohydrate content of selected frozen and canned foods

Selected foods	*Total dietary fiber*	*Total sugar*	*Starch*
	Grams per 100 grams		
Chili con carne	4.7	3.0	3.2
Lasagna	4.1	2.5	9.3
Pizza	3.2	3.0	16.2
Spaghetti with meatballs	1.6	2.7	7.1
Vegetable pie with chicken	2.0	2.2	12.8

NOTE: Chili con carne, lasagna, pizza, and vegetable pie with chicken were frozen products; spaghetti with meatballs was a canned product.

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory.

Figure 90. Comparison of total dietary fiber and crude fiber levels for selected fruits and vegetables: Nonenzymatic-gravimetric method

Selected foods	*Total dietary fiber*	*Crude fiber*
	Grams per 100 grams	
Bell pepper, green	1.8	0.4
Cucumber with skin	1.1	0.6
Cucumber without skin	0.7	–
Prunes, pitted	6.6	2.0
Broccoli, raw	3.7	1.1

NOTE: Dash denotes data not available.

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory.

Figure 91. Mean vitamin C levels for selected fresh foods

Selected fresh foods	*Milligrams per 100 grams*
Raw vegetables:	
Pepper, red	155
Pepper, green	134
Broccoli	97
Cauliflower	63
Cabbage	42
Mustard greens	36
Spinach	25
Tomato	15
Cucumber	14
Green Beans	12
Carrots	7
Juices:	
Orange juice	41
Tomato juice	16
Fruits:	
Orange	70
Cantaloupe	30
Banana	19
Watermelon	10

NOTE: Vitamin C content can vary by a factor of 2.

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory.

Figure 92. Range of vitamin C levels for selected fresh foods

Selected fresh foods	*Milligrams per 100 grams*
Lettuce	1–7
Cucumber	0–14
Bananas	7–19
Green beans	12–18
Potato	0–30
Tomato	9–26
Grapefruit	21–48
Cabbage, raw	31–83
Orange	40–78
Broccoli, raw	77–163

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory.

Figure 93. Mean selenium levels for selected frequently consumed foods

Selected foods	*Micrograms per 100 grams*
Beef, bottom round, separable lean, braised	28.1
Pork, center loin, separable lean, broiled	47.3
Chicken breast, meat only, roasted	27.6
White bread	28.2
Egg, scrambled	22.5
Milk, 2% fat	2.2
Tuna, light meat, canned, waterpack, drained	80.4
Lettuce, raw	0.2
Green beans, cooked, canned, or frozen	0.4

SOURCE: Compiled by U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory, and Human Nutrition Information Service.

Figure 94. Median carotenoid levels for selected fruits

	Carotenoid levels				
Selected fruits	*Beta-cryptoxanthin*	*Lycopene*	*Lutein*	*Alpha-carotene*	*Beta-carotene*
	Micrograms per 100 grams				
Apple	0	0	45	0	26
Orange juice	24	0	74	6	7
Peach	47	0	28	0	100
Papaya	470	0	0	0	99

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory, and Department of Health and Human Services, National Institutes of Health, National Cancer Institute.

Figure 95. Median carotenoid levels for selected vegetables

	Carotenoid levels				
Selected vegetables	*Beta-cryptoxanthin*	*Lycopene*	*Lutein*	*Alpha-carotene*	*Beta-carotene*
	Micrograms per 100 grams				
Broccoli	0	0	1,900	0	1,300
Cabbage	0	0	150	0	80
Carrots	0	0	260	3,600	7,900
Corn, yellow	0	0	780	50	51
Green beans	0	0	740	44	630
Potato, white	0	0	18	0	3
Pumpkin	0	0	1,500	3,800	3,100
Tomato juice	0	8,580	0	0	900

SOURCE: U.S. Department of Agriculture, Agricultural Research Service, Nutrient Composition Laboratory, and Department of Health and Human Services, National Institutes of Health, National Cancer Institute.

Figure 96. Per capita index of food supplies, 1970–90

Year	All food	Animal products	Crop products
	Price-weighted per capita food consumption Index		
1970	99.3	103.3	94.7
1971	100.3	104.7	95.5
1972	99.8	103.6	95.5
1973	97.8	98.5	97.0
1974	98.3	100.8	95.4
1975	97.9	98.9	96.8
1976	101.2	102.6	99.6
1977	99.5	102.1	96.3
1978	99.0	100.9	96.5
1979	99.0	99.6	98.4
1980	98.6	99.5	97.4
1981	98.1	99.2	96.8
1982	98.1	97.8	98.6
1983	100.2	100.3	100.1
1984	101.6	101.8	101.3
1985	104.3	103.9	104.8
1986	105.0	103.9	106.3
1987	105.8	103.4	108.7
1988	105.9	103.1	109.3
1989	105.9	102.2	110.5
1990	105.6	101.5	110.6

NOTE: The availability of food for human consumption represents the disappearance of food into the marketing system (referred to as food disappearance). Per capita food consumption is calculated by dividing totel food disappearance by the U.S. total population. The price-weighted per capita food consumption index for all food is calculated by averaging the price-weighted food supplies for 1982–84 and then dividing the food supplies for each year by this average value. A similar calculation is used for animal products and for crop products.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division.

Figure 97. Per capita food fats and oils in the food supply, 1970–90

Year	Total fat	Vegetable fat	Animal fat
		Pounds	
1970	52.6	38.5	14.1
1971	51.8	37.4	14.4
1972	53.3	40.0	13.3
1973	53.3	41.7	11.6
1974	52.4	40.5	11.9
1975	52.7	41.9	10.8
1976	55.1	45.0	10.1
1977	53.3	42.7	10.6
1978	54.9	44.1	10.8
1979	56.4	44.9	11.5
1980	57.1	44.8	12.3
1981	57.4	45.7	11.7
1982	58.2	46.8	11.4
1983	60.0	47.9	12.1
1984	58.8	46.4	12.4
1985	64.2	50.9	13.3
1986	64.3	51.7	12.6
1987	62.9	51.8	11.1
1988	63.0	52.2	10.8
1989	61.1	50.5	10.6
1990	62.7	52.5	10.2

NOTE: The availability of food for human consumption represents the disappearance of food into the marketing system (referred to as food disappearance). Per capita food consumption is calculated by dividing total food diseppearance by the U.S. total population. Reported consumption figures for fats and oils are over-estimeted because waste fat is not subtrected. Supplies of food fats and oils are reported on a fat-content basis and include butter, margarine, direct use of lard and edible tallow, shortening, salad and cooking oils, and other fats.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division.

Figure 98. Per capita use of grain products and fresh produce, 1970, 1980, and 1990

Year	Flour and cereals	Fruit	Vegetables	Potatoes
		Pounds		
1970	135	96	82	59
1980	146	103	87	49
1990	183	112	104	44

NOTE: The availability of food for human consumption represents the disappearance of food into the marketing system (referred to as food disappearance). Per capita food consumption is calculated by dividing total food disappearance by the U.S. total population. All figures reported are for retail weight except as noted. Grain, fruit, and potato use estimates are inclusive, but estimates of vegetable use include only 17 commercial market items. Consumption estimates for flour and cereals are reported from the first level of processing. The fruit category includes melons; the vegetable category excludes potatoes.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division.

Figure 99. Annual per capita use of sweeteners, 1970–91

Year	Refined sugar	Corn sweeteners	Low calorie sweeteners
		Pounds	
1970	101.8	19.3	5.8
1971	102.2	20.8	5.1
1972	102.3	21.1	5.1
1973	100.8	23.4	5.1
1974	95.7	25.1	5.9
1975	89.2	27.4	6.1
1976	93.4	29.3	6.1
1977	94.2	30.8	6.6
1978	91.4	32.8	6.9
1979	89.3	35.9	7.3
1980	83.6	39.0	7.7
1981	79.4	43.5	8.2
1982	73.7	48.2	9.5
1983	70.3	52.9	13.0
1984	66.6	59.0	15.8
1985	62.7	67.2	18.1
1986	60.0	68.1	18.5
1987	62.4	69.9	19.1
1988	62.1	71.6	20.0
1989	62.8	72.2	20.3
1990	64.5	73.1	22.2
1991	64.9	73.9	24.3

NOTE: The availability of food for human consumption represents the disappearance of food into the marketing system (referred to as food disappearance). Per capita food consumption is calculated by dividing total food disappearance by the U.S. total population. Figures exclude small quantities of honey and syrup.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division.

Figure 100. Per capita use of meats, poultry, and fish, boneless and trimmed equivalent, 1970, 1980, and 1991

Year	Total meat	Red meat	Poultry	Fish and shellfish
		Pounds		
1970	177.3	131.7	33.8	11.7
1980	179.4	126.4	40.6	12.4
1991	184.8	111.9	58.0	14.8

NOTE: The availability of food for human consumption represents the disappearance of food into the marketing system (referred to as food disappearance). Per capita food consumption is calculated by dividing total food disappearance by the U.S. total population. Poultry figures include skin, neck meat, and giblets.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division.

Figure 101. Per capita use of eggs, 1970, 1980, and 1991

Year	Total	In shell	Processed
		Number	
1970	309	276	33
1980	271	236	35
1991	231	180	51

NOTE: The availability of food for human consumption represents the disappearance of food into the marketing system (referred to as food disappearance). Per capita food consumption is calculated by dividing total food disappearance by the U.S. total population.

SOURCE: U.S. Department of Agriculture, Economic Research Service, Commodity Economics Division.

Figure 102. Per capita calcium available in the food supply, 1909–88

Year	Milligrams per capita per day	Year	Milligrams per capita per day
1909	751.7	1950	946.5
		1951	936.6
1910	733.9	1952	945.1
1911	721.1	1953	925.8
1912	766.1	1954	920.8
1913	746.2	1955	931.7
1914	724.5	1956	932.7
1915	698.5	1957	922.7
1916	677.5	1958	913.3
1917	706.9	1959	914.8
1918	779.4		
1919	738.1	1960	904.8
		1961	895.6
1920	776.5	1962	896.0
1921	760.7	1963	883.4
1922	778.3	1964	884.2
1923	777.2	1965	863.9
1924	785.0	1966	866.0
1925	793.4	1967	850.0
1926	800.7	1968	846.8
1927	801.6	1969	844.0
1928	801.5		
1929	824.1	1970	952.3
		1971	857.7
1930	812.8	1972	853.9
1931	806.9	1973	858.9
1932	807.4	1974	835.3
1933	802.5	1975	835.6
1934	807.1	1976	858.3
1935	824.6	1977	848.9
1936	841.6	1978	849.3
1937	847.1	1979	856.8
1938	857.6		
1939	873.5	1980	843.7
		1981	833.3
1940	877.3	1982	842.8
1941	890.2	1983	853.1
1942	939.9	1984	867.3
1943	964.2	1985	887.4
1944	989.4	1986	898.9
1945	1,048.0	1987	903.6
1946	1,057.1	1988	890.8
1947	994.6		
1948	949.9		
1949	941.4		

NOTE: The levels shown are the levels of calcium in food at the retail level, not in food as eaten.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service.

Figure 103. Sources of calcium in the food supply for selected years, 1909–88

Food type	Year					
	1909–14	1945–49	1955–59	1965–69	1976–79	1985–88
	Percent					
Dairy products	68	76	77	76	76	75
Vegetables	12	11	9	9	10	10
Grains	8	4	3	4	4	4
Meats, poultry, and fish	4	3	3	4	4	4
Fruits	3	3	3	2	2	3
Other foods	5	5	5	5	4	4

NOTE: The other foods category includes eggs, fats and oils, sugars, sweeteners, and miscellaneous. The vegetables category includes potatoes, dried beans, peas, nuts, and soy products.

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service.

Figure 104. Sources of calcium from dairy products for selected years, 1909–88

Dairy product	Year					
	1909–14	1945–49	1955–59	1965–69	1975–79	1985–88
	Percent					
Cheese	7	8	10	15	22	30
Frozen dairy desserts	1	3	3	4	4	3
Processed milks	6	19	22	46	15	15
Cream	2	2	2	1	1	2
Lowfat milk	19	7	5	9	19	25
Whole milk	65	61	58	54	39	25

SOURCE: U.S. Department of Agriculture, Human Nutrition Information Service.

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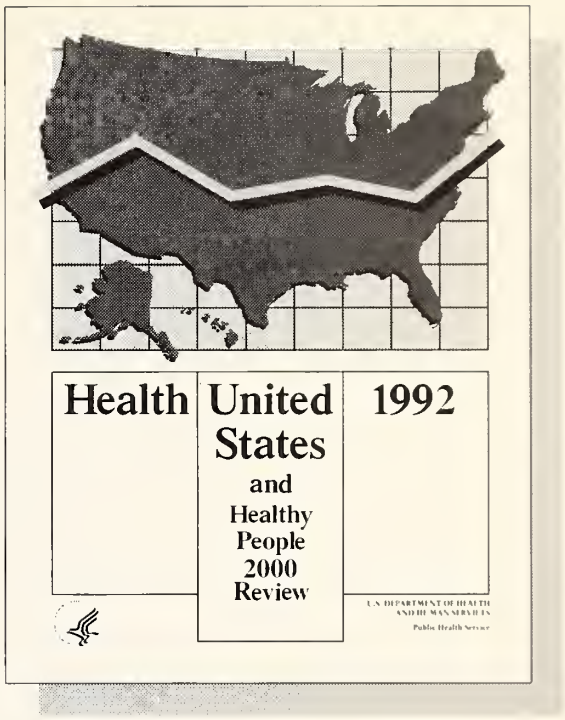

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