Chapter 3

How Current Diets Stack Up

Comparison With Dietary Guidelines

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How well do our diets meet the Dietary Guidelines for Americans? This study compares 1994-96 food intake data from the U.S. Department of Agriculture's Continuing Survey of Food Intakes by Individuals with the recommendations in the Dietary Guidelines for Americans.

Introduction

How well do our diets meet the *Dietary Guidelines for Americans*? Have changes over time in what we eat moved us closer to dietary recommendations made by professional science and health groups?

The trend toward lower-fat diets between 1977-78 and 1994-96 is a step in the right direction (fig. 1). However, the proportion of our food energy that comes from fat is still higher than recommended, and survey data indicate that large proportions of the population fail to meet recommendations for fruits and vegetables (USDA, 1998a). Some of the changes people have made are moving them in the right direction, but others are not. For example, large increases in the share of milk that is low-fat or skim suggest that people are interest-

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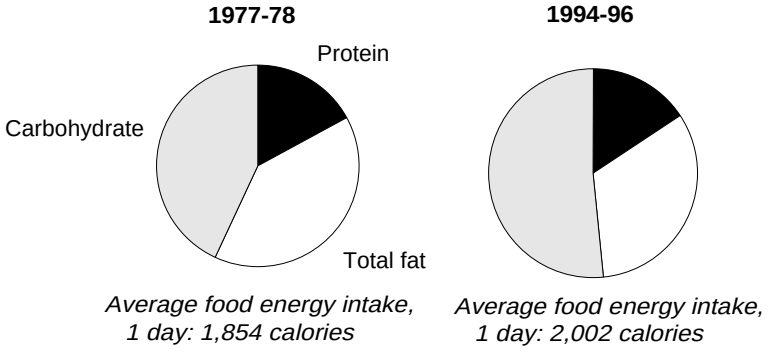
Figure 1

The share of calories from fat has fallen, but is still above the recommendation



Source: USDA Nationwide Food Consumption Survey, 1977-78, and Continuing Survey of Food Intakes by Individuals, 1994-96.

ed in limiting calories, fat, and/or sugar. However, the shift toward eating more mixtures like pizza, which can be high in fat, and drinking more soft drinks suggests the opposite.

The Continuing Survey of Food Intakes by Individuals (CSFII) and the Diet and Health Knowledge Survey (DHKS), both conducted by the Agricultural Research Service of the U.S. Department of Agriculture (USDA), provide information on the kinds and amounts of foods eaten by Americans and on Americans' attitudes and knowledge about diet and health. Data from the surveys are compared here with principles for healthy eating described in the 1995 *Dietary Guidelines for Americans* (USDA and DHHS, 1995).

The 1994-96 intake estimates presented here are averages for 15,968 individuals of all ages (excluding breastfed children) who provided at least 1 day of dietary intake. The estimates are compared with similar data collected in the 1977-78 Nationwide Food Consumption Survey to see how eating patterns and intake levels have changed over time. A second day of dietary data was collected in 1994-96 from 15,170 individuals and the 2-day average is used here to provide estimates of the percentages of individuals meeting dietary recommendations for fat and cholesterol. Information on dietary attitudes and knowledge is based on the 5,765 individuals 20 years and over who provided at least 1 day of dietary intake in the 1994-96

CSFII and who participated in the 1994-96 DHKS. Estimates of intakes of servings and the percentages of individuals meeting recommendations in the Food Guide Pyramid are based on information from 14,256 people 2 years of age and over who provided food intakes on 2 days in 1994-96.

Eat a Variety of Foods

The first dietary guideline—to eat a variety of foods—aims at ensuring that we obtain the nutrients and other substances we need from foods. Because different foods supply different nutrients, a daily diet should contain an assortment of foods from within each of the five major food groups emphasized by the Food Guide Pyramid (USDA, 1992): bread, cereal, rice, and pasta; vegetables; fruits; milk, yogurt, and cheese; and meat, poultry, fish, dry beans, eggs, and nuts.

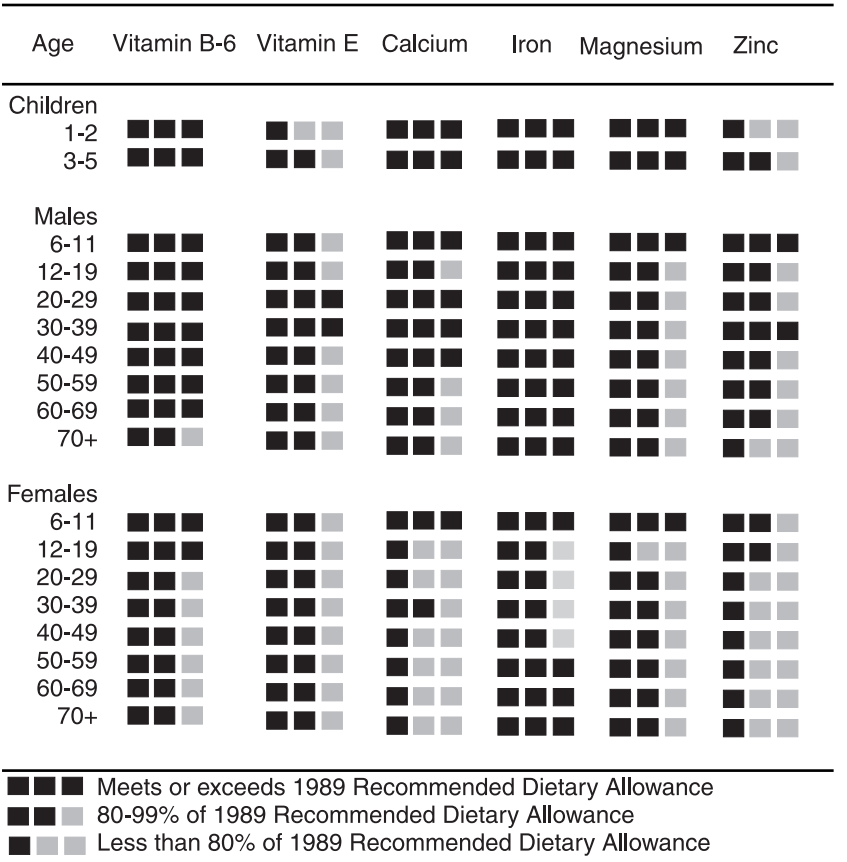
One way to assess variety is to look at nutrient intakes. The many foods we eat provide us with most of the nutrients we need, but, as a population, we still consume diets that are short in some nutrients.

The wide array of foods consumed in 1994-96 provided the Recommended Dietary Allowances (RDA) (National Research Council, 1989a) for many nutrients, but not for others. Average nutrient intakes for most population groups exceeded the RDA for protein, vitamin A, vitamin C, thiamin, riboflavin, niacin, folate, vitamin B-12, and phosphorus. For other nutrients—notably vitamins B-6 and E, calcium, iron, magnesium, and zinc—intakes were below the RDA for many groups (fig. 2). In general, the nutrients that were below the RDA in 1994-96 are the same nutrients that were below the RDA in the 1970's. (Vitamin E and zinc were not examined in 1977-78.)

An average intake below the RDA does not necessarily mean that people in a group have inadequate intakes. Individuals' nutrient requirements differ, and the RDA's include a safety factor so that the RDA's exceed actual requirements of most individuals. However, the risk that some individuals within a population group have inadequate intakes increases as the average intake for the group falls further below the RDA (National Research Council, 1989a).

Calcium and iron are of particular interest because some groups of people in the United States, especially adolescent and adult females,

Figure 2
Intakes of several nutrients below the RDA, 1994-96



Source: CSFII 1994-96 and National Research Council. Recommended Dietary Allowances. 10th-ed. Wash., DC: National Academy Press, 1989

have notably low intakes, and there is evidence that health problems are related to these low intakes. In 1994-96, DHKS respondents were asked to estimate how their diets compare "to what is healthy" for selected nutrients. Sixty-one percent of men and 51 percent of women said their diets were about right in calcium and 67 percent of men and 59 percent of women said their diets were about right in iron. In 1994-96, of those who said their diets were about right in calcium, only 39 percent met the RDA for calcium. However, of those who said their diets were about right in iron, 62 percent met the RDA for iron (see chapter 15 for more information on how individuals perceive their diets).

Table 1—Recommended servings based on USDA's Food Guide Pyramid and average consumption in 1994-96

Food group	Recommended Pyramid servings	Average servings consumed (2-day average)	Individuals consuming recommended number of servings based on reported caloric intake[1]
	Number		*Percent*
Grain	6 to 11	6.7	38
Vegetable	3 to 5	3.3	41
Fruit	2 to 4	1.5	23
Dairy	2 to 3	1.5	23
Meat (ounces)	5 to 7	4.7	32

[1] Based on reported calorie intake: For the grain, vegetable, fruit, and meat groups, individuals consuming 2,200 calories met the recommendation if they ate at least the lowest number of servings in the range a day; individuals consuming 2,200-2,800 calories met the recommendation if they ate the number of servings in the middle of the range; and individuals consuming 2,800 calories or more met the recommendation if they ate at least the number of servings at the top of the range. For the dairy group, women who were pregnant or lactating and individuals 11 to 24 years of age were counted as meeting the recommendation if they consumed at least 3 dairy servings a day; all other individuals were counted as meeting the recommendation if they consumed at least 2 dairy servings a day.

Sources: USDA's Continuing Survey of Food Intakes by Individuals, 1994-96; USDA *Food Guide Pyramid*, 1992.

Another way to assess variety is to look at how well Americans eat compared with recommendations in USDA's *Food Guide Pyramid* (USDA, 1992). USDA has developed a new method for converting food intake data from the CSFII into servings (USDA, 1998a; Cleveland and others, 1997). The method adheres to Pyramid principles, uses the serving sizes specified by the Pyramid, and strictly categorizes foods according to Pyramid criteria. Since many foods people eat—foods like pizza, soups, and pies—count toward more than one food group, the method separates foods into their ingredients before servings are counted.

The Pyramid provides guidance for individuals 2 years of age and over. According to the Pyramid, everyone should eat at least the lowest number of servings within recommended ranges (table 1). Except for the dairy group, the number of servings that is right for a person depends on his or her calorie needs. For the dairy group, the recommended number of servings depends on age and, for women, on whether or not they are pregnant or breastfeeding. Generally speaking, the bottom of the recommended range of servings is about

right for many sedentary women and older adults; the middle is about right for most children, teenage girls, active women, and many sedentary men; and the top of the range is about right for teenage boys, many active men, and some very active women.

In 1994-96, the average diet of Americans 2 years of age and over contained about 2,000 calories. Average numbers of servings from the fruit, dairy, and meat groups were below minimum numbers recommended; those from the grain and vegetable groups were near the bottom of recommended ranges (table 1). When the recommended number of servings is based on an individual's calorie intake (or for the dairy group, on an individual's age and physiological status), only 4 of 10 individuals met the recommendations for the grain and vegetable groups, only 3 of 10 met the recommendation for the meat group, and only about 2 of 10 met the recommendations for the fruit and dairy groups.

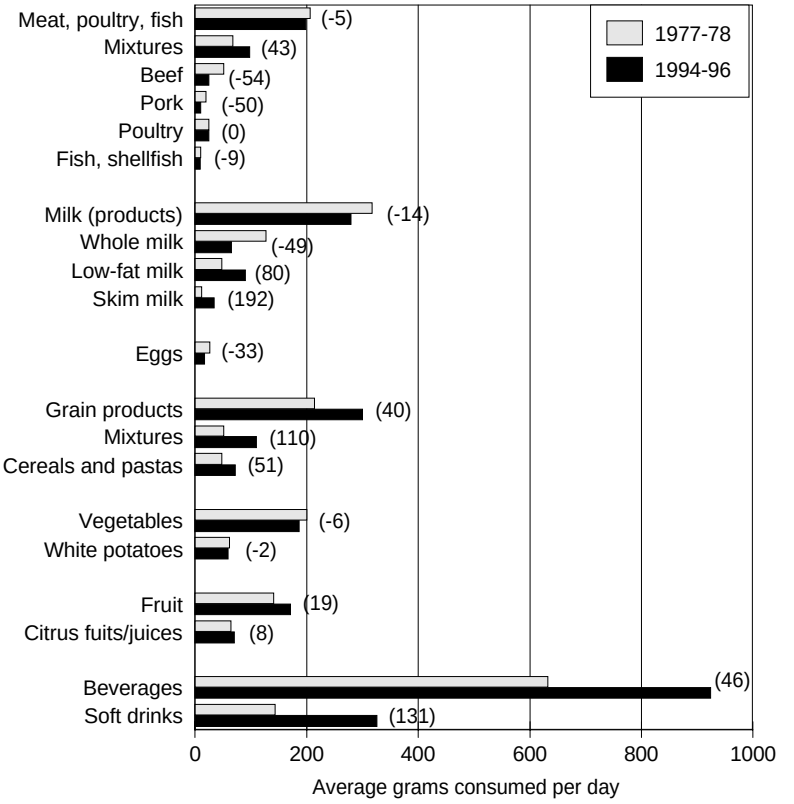
Pyramid servings were first available with the 1994 CSFII. However, comparisons with previous surveys may be made using the more traditional way of reporting data—the amount of food consumed as measured in grams. For the Pyramid servings, mixtures have been broken down into their component parts and classified into Pyramid food groups; for traditional intake data, foods were classified into food groups according to the their main ingredient (see box, "How Food is Reported").

Based on traditional intake data, diets in 1994-96 differed considerably from those in 1977-78 (fig. 3). In 1994-96, we ate more mixtures that were mainly meat, poultry, or fish (such as hamburgers, stews, and chicken or fish sandwiches). At the same time, we ate fewer separate cuts of beef and pork (such as steaks and roasts), slightly more poultry, and slightly less fish and shellfish. We drank less whole milk and more low-fat and skim milk. We ate fewer eggs. We ate more grain products, especially as part of mixtures such as pizza and as cereals and pastas. We drank more carbonated soft drinks, especially low-calorie soft drinks. Fruit consumption was up, but a large proportion of the population still does not eat fruit on any given day.

Some of these consumption changes may indicate interest in diet and health issues. The changes may also reflect shifts in incomes and in relative food prices (for more details on the effects of income and

Figure 3

Diets have changed in the past decade



( ) = percentage change in amount consumed, 1 day, 1977-78 and 1994-96.

Source: USDA Nationwide Food Consumption Survey, 1977-78, and Continuing Survey of Food Intakes by Individuals, 1994-96.

price changes on nutrient intake, see chapter 8). And these trends may be influenced by industry efforts to meet the public's desire for health and convenience through increased numbers and varieties of restaurants, microwave-ready products, commercially prepared convenience foods, carryout meals and home-delivered food, and supermarkets with bakeries, delicatessens, and salad bars.

Some of the estimated changes—such as the apparent decline in consumption of beef and pork and the limited change in the consumption of poultry, fish and shellfish, fruit, and vegetables—are contrary to

Table 2—Vegetables are the second largest ingredient in grain mixtures and in meat mixtures

Ingredient	Grain mixtures	Meat mixtures
	Percent	
Grain products	32	14
Vegetables	24	28
Milk and milk products	8	6
Meat, poultry, fish	8	34
Water	19	10
Other	9	8

Source: USDA Continuing Survey of Food Intakes by Individuals, 1994, 1-day, adults 20 years and older.

trends suggested by food disappearance data (see chapter 7). Some of these differences may be due to the difference in methodologies (see box, "Survey Consumption Estimates May Differ From Food Disappearance Trends"), and to frequent use of meat, cheese, grains, fruit, and vegetables as ingredients in mixed dishes. As a result, intake estimates in figure 3 for some food groups—particularly meats, vegetables, and grains—may be different than if food in the mixtures were divided and counted separately. By definition, grains are, by weight, the chief ingredient of grain mixtures such as lasagna; and meat, poultry, and fish are the chief ingredients of meat mixtures such as chili. However, among foods consumed in 1994 by adults 20 years and older, vegetables were the second largest ingredient of both grain mixtures and meat mixtures (table 2).

Balance the Food You Eat With Physical Activity—Maintain or Improve Your Weight

Many Americans gain weight in adulthood, increasing their risk for major health problems such as high blood pressure, heart disease, stroke, adult-onset diabetes, certain types of cancer, arthritis, breathing problems, and other illnesses (USDA and DHHS, 1995). Therefore, most adults should not gain weight. To stay at the same body weight, people must balance calories in the foods and drinks they consume with calories (food energy) the body uses. Physical activity is an important way to use calories; the *Dietary Guidelines for Americans* recommend that people get at least 30 minutes of moderate physical activity daily (USDA and DHHS, 1995).

To determine the extent of overweight, survey respondents were classified based on their Body Mass Index (BMI). BMI's are calculated by dividing weight in kilograms by the square of height in meters (Rowland, 1989). For the data reported here, BMI's are based on self-reported heights and weights. Following the 1995 Dietary Guidelines, overweight was designated as a BMI of 25 or more for both men and women—studies demonstrate that mortality increases significantly above a BMI of 25 (USDA, 1995; American Heart Association, 1998). In 1994-96, 60 percent of males and 46 percent of females 20 years and over were overweight. These percentages are considerably higher than those calculated in previous years using different levels of BMI. For example, in *Healthy People 2000*, overweight was designated as a BMI of 27.8 or more for men and 27.3 or more for women (DHHS, 1991). Using these BMI levels, the 1994-96 CSFII data indicated that 32 percent of males 20 years and over were overweight, up from 18 percent in 1977-78, and 32 percent of females were overweight, up from 22 percent in 1977-78 (table 3). (For more details on the progress of *Healthy People 2000* objectives, see chapter 6.)

Although the proportion of the population classified as overweight increased considerably between 1977-78 and 1994-96, estimated caloric intakes increased only slightly for most groups in the same period, and some of that increase may be due to improvements in the way dietary data are collected. The average 1-day caloric intake in 1994-96 was 2,002 kcal, compared with 1,854 kcal in 1977-78. In 1994-96, men 20 years and over ate more than women the same age—2,455 kcal compared with 1,646 kcal, but men also have higher calorie requirements than women. For nearly all sex-age groups, intake estimates were below the recommended energy allowances (REA) (National Reseach Council, 1989a).[1] However, some evidence suggests that people participating in nutrition surveys underreport the food they eat (Mertz and others, 1991; Schoeller, 1990), either by completely omitting food items or by inaccurately estimating the amount eaten. Also, the average energy allowances are designed for a light-to-moderate level of physical activity. It is possi-

[1] Unlike the RDA's, which are set high enough to exceed actual nutrient requirements for most individuals, the REA reflects the average caloric requirement for moderately active people within each population group, since excessive consumption of energy may lead to obesity.

Table 3—More people are overweight than two decades ago[1]

Gender and age	1977-78	1994-96
	Percent overweight	
Males		
20-29	12	22
30-39	20	32
40-49	24	37
50-59	23	40
60-69	20	41
70+	13	22
20 and over	18	32
Females		
20-29	12	22
30-39	18	27
40-49	26	36
50-59	30	38
60-69	31	38
70+	24	33
20 and over	22	32

[1] Based on a Body Mass Index of 27.8 or more for men and 27.3 or more for women (DHHS, 1991).

Source: USDA Nationwide Food Consumption Survey 1977-78, and Continuing Survey of Food Intakes by Individuals 1994-96.

ble that Americans' actual level of physical activity is lower than light-to-moderate. In 1994-96, 28 percent of men and 44 percent of women said they rarely or never exercised vigorously.

In 1994-96, 68 percent of adult men and 77 percent of adult women said it was very important to them to maintain a healthy weight, but only 36 percent of men and 42 percent of women thought they ate too many calories. More than 9 of 10 respondents had heard of health problems related to being overweight. Nevertheless, about 4 of 10 respondents agreed with the statement, "Some people are born to be fat and some thin; there is not much you can do to change this."

Choose a Diet With Plenty of Grain Products, Vegetables, and Fruits

Grain products, vegetables, and fruits are key parts of a varied diet. They are emphasized in the Guidelines because they provide vita-

mins, minerals, complex carbohydrates, and other substances that are important for good health. They are also generally low in fat, depending on how they are prepared and what is added to them at the table.

The 1995 Guidelines recommend eating 6 to 11 servings of grain products daily, including several servings of whole grains (USDA and DHHS, 1995). In 1994-96, only about a third of respondents to the DHKS thought it was very important to choose a diet with plenty of breads, cereals, rice, and pasta. In 1994-96, on average, Americans ate the minimum number of grain servings recommended (table 1), but less than one in seven grain servings (15 percent) were whole grains (fig. 4). Whole grains contribute to fiber intake. The average intake of dietary fiber in 1994-96 was 15 grams; intake by men was 19 grams and intake by women was 14 grams. Although the *Dietary Guidelines* do not recommend a specific amount of fiber, intakes by women are well below the 20-30 grams recommended by the National Cancer Institute (1987).

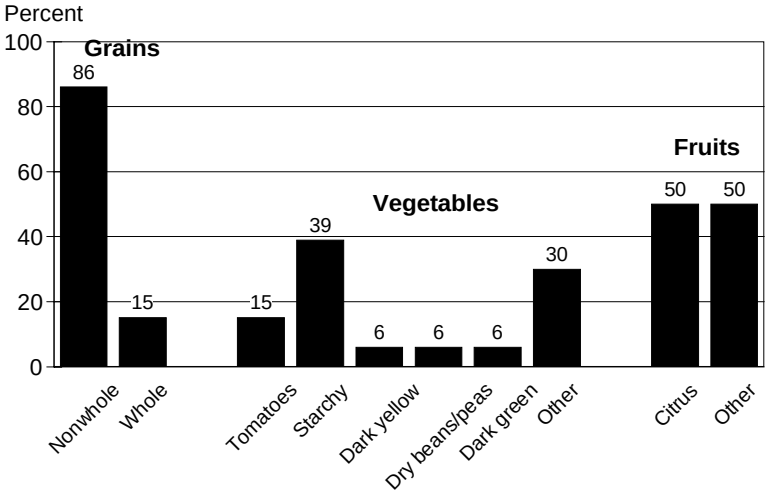
Consumption of grain products (in grams) has increased by 40 percent since the late 1970's (fig. 3). Among grain products, consumption of grain mixtures has increased 110 percent and consumption of cereals and pastas has increased by 51 percent. Data on pizza from the first year (1994) of the survey illustrate how consumption of grain mixtures increased over the years. The percentage of individuals eating pizza on any given day increased from 4 to 10 percent between 1977-78 and 1994. In 1994-96, males 6 to 11 years were the biggest consumers of pizza—19 percent ate pizza on any given day.

The 1995 *Guidelines* also recommend eating three to five servings of vegetables and two to four servings of fruits daily (USDA and DHHS, 1995). About two-thirds of adults thought it was very important to choose a diet with plenty of vegetables and fruits. On average, individuals 2 years and over ate the minimum number of vegetables, but less than the minimum number of fruits (table 1).

Although the Pyramid suggests eating dark-green vegetables and cooked dry beans and peas several times a week, intakes of these vegetables are low. The largest proportion of vegetables are starchy types—mostly white potatoes (fig. 4). In 1994-96, about 44 percent of individuals ate white potatoes at least once on any given day. Overall, more than a third of the intake of white potatoes was french

Figure 4

Pyramid servings: percent of intake by selected subgroups



Source: USDA's Continuing Survey of Food Intakes by Individuals, 1994-96, 2-day average.

fries. The proportion of white potatoes eaten as french fries was highest among individuals under 30 years of age.

The Pyramid suggests dividing fruit servings equally between two subgroups: citrus fruits, melons, and berries; and other fruits. On average, Americans follow this advice (fig. 4). Fruit consumption (in grams) increased by 19 percent between 1977-78 and 1994-96. However, the percentage of individuals who reported eating fruit on any given day remained about 54 percent.

Vegetables and fruits are major sources of vitamins A and C. Although average intakes by all sex-age groups for both vitamins were above the RDA, the averages conceal variations. In 1994-96, for women age 20 years and over who ate no fruit on day 1 of the survey, average intake of vitamin C was 82 percent of RDA compared with 205 percent for women who ate fruit. Diets of women who did not eat fruit included a higher percentage of calories from fat (34 percent) than did diets of women who ate fruit (31 percent).

By 1994-96, the proportion of carbohydrates in our diets had increased to 52 percent of calories, up from 43 percent in 1977-78. This change is in line with the *Guidelines*. Some of the increase in

carbohydrates is probably due to increased consumption of grain products. However, some is probably due to the increased use of sweetened beverages, which provide calories from sugar (a carbohydrate) but no other nutrients.

Choose a Diet Low in Fat, Saturated Fat, and Cholesterol

The 1995 *Guidelines* emphasize that, as a population, we should consume less total fat, saturated fat, and cholesterol. Americans are advised to choose a diet that has no more than 30 percent of calories from fat, less than 10 percent of calories from saturated fat, and 300 mg or less of cholesterol.

In 1994-96, total fat provided 33 percent of calories and saturated fat, 11 percent. Although the percentage of calories from total fat in our diets is above the recommendation, it is down considerably from the 40 percent of calories estimated in 1977-78. (Saturated fat was not measured in 1977-78, so no comparisons are possible.)

Cholesterol intakes averaged 256 milligrams, but were considerably higher for men (331 mg) than for women (213 mg). Among men, average cholesterol intakes ranged from 270 milligrams for men age 70 and over to 352 milligrams for men 30 to 39 years. Among women, average cholesterol intakes fell below the recommended 300 mg for all age groups. Cholesterol intake was not measured in 1977-78.

Much higher percentages of adult men and women had average 2-day intakes meeting the recommendation for cholesterol than for total fat and saturated fat. More than half of the men (55 percent) and nearly four-fifths of the women (79 percent) had diets that met the recommendation for cholesterol. In contrast, only 29 percent of men and 37 percent of women had diets that met the recommendation for fat; slightly higher proportions had diets that met the recommendations for saturated fat (34 and 43 percent, respectively). However, of the adults responding to the DHKS, less than half thought their diets were too high in fat, and only about a third thought their diets were too high in saturated fat. (For additional discussion on the accuracy of individuals' perception about the healthfulness of their diets, see chapter 15.)

Table 4—Milk drunk by older age groups is more likely to be low-fat or skim

Sex-age group	Percentage of fluid milk that was		
	Whole milk	Low-fat milk[1]	Skim milk
		Percent	
Males:			
20-29	34	46	19
30-39	35	48	15
40-49	29	46	22
50-59	22	50	27
60-69	25	46	28
70+	25	52	22
Females:			
20-29	40	30	28
30-39	23	50	24
40-49	27	43	29
50-59	17	38	42
60-69	19	45	34
70+	20	49	30

Percents may not add to 100 because milk that was unspecified as to type is not included here.

[1] Includes 1% and 2% milk.

Source: USDA Continuing Survey of Food Intakes by Individuals, 1994-96.

Changes in food choices have contributed to the reduced percentage of energy from fat. For example, our intake of whole fluid milk fell by nearly half (down 49 percent) between 1977-78 and 1994-96 while our intakes of low-fat and skim milk increased by 80 percent and 192 percent. In 1994-96, older age groups drank larger proportions of their milk as low-fat or skim milk than did younger age groups (table 4)—possibly because older people are more aware of dietary guidance to reduce fat and calories (Cypel and others, 1996).

Choose a Diet Moderate in Sugars

About 82 percent of adult men and 89 percent of adult women thought it was somewhat or very important to use sugars only in moderation. However, much of the sugar we eat is as an ingredient in other foods, such as cookies, cakes, ice cream, sweetened beverages, and other processed foods. This may make it difficult for indi-

viduals to know how much sugar they are consuming, or to realize that their consumption of sugar is increasing.

The Pyramid suggests that Americans try to limit their added sugars to 6 teaspoons a day if they eat about 1,600 calories, 12 teaspoons at 2,200 calories, or 18 teaspoons at 2,800 calories. In 1994-96, Americans consumed an average of 20 teaspoons of added sugars a day in a diet that provided about 2,000 calories. Added sugars accounted for 16 percent of calories.

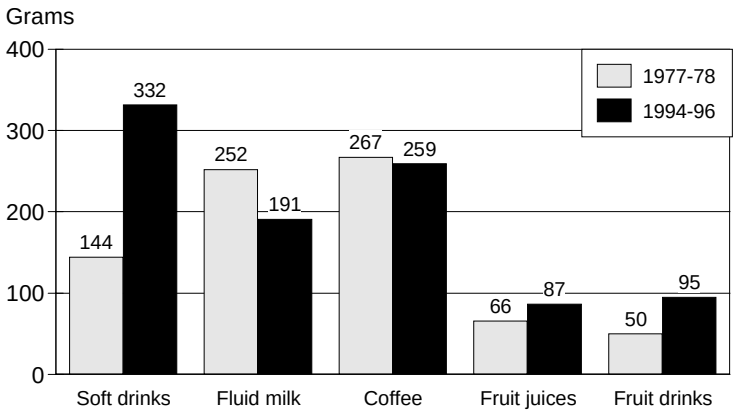
A look at consumption trends for foods likely to contain large amounts of added sugar suggests that sugar consumption is increasing. In 1977-78, consumption of soft drinks was about half as great as consumption of either milk or coffee; by 1994-96, the consumption of soft drinks was higher than those of milk and coffee (fig. 5). While average milk consumption declined and coffee consumption remained about the same, soft drink consumption increased 130 percent from 144 to 332 grams. (An 8-ounce cup of fluid milk, coffee, fruit juice, or soda weighs about 245 grams.) Although the intake of low-calorie soft drinks nearly quadrupled, from 20 grams in 1977-78 to 78 grams in 1994-96, about three-fourths of the total consumption of soft drinks is the sugar-sweetened type. Consumption of other high sugar-added foods also increased during the last decade and a half; consumption of milk desserts (which includes ice cream) increased by 29 percent and consumption of cakes, cookies, pastries, and pies increased by 15 percent.

Choose a Diet Moderate In Salt and Sodium

Sodium has an important role in the body, helping to regulate fluids and blood pressure. However, most Americans consume more sodium than is needed. The Committee on Diet and Health of the National Research Council (1989b) has recommended that daily intakes of salt (sodium chloride) be limited to 6 grams, and this recommendation is the basis for the Daily Values on the Nutrition Facts label (USDA and DHHS, 1995). This translates into a daily sodium intake of 2,400 milligrams. In household measures, one level teaspoon of salt provides about 2,300 milligrams of sodium. Many studies in diverse populations have shown that a high sodium intake is associated with higher blood pressure (USDA and DHHS, 1995).

Figure 5

Consumption of soft drinks surpasses consumption of fluid milk in 1994-96



Source: USDA Continuing Survey of Food Intakes by Individuals, 1994-96.

The average intake of sodium from food in 1994-96 was 3,271 milligrams, 4,074 milligrams for men 20 years and over and 2,752 milligrams for women 20 years and over. These intakes are underestimated because they do not include sodium from salt added at the table. Intakes of sodium were not examined in 1977-78, but average intakes in 1994-96 were higher than the average of 2,974 mg in a similar survey conducted in 1987-88 (USDA, 1993). In 1994-96, only 25 percent of men and 24 percent of women thought that their diets were too high in salt or sodium; 61 percent of men and 66 percent of women believed that their diets were about right. Almost 9 of 10 individuals indicated that they were aware of health problems related to salt or sodium consumption. Hypertension was cited most frequently.

If You Drink Alcoholic Beverages, Do So in Moderation

Alcoholic beverages supply calories but few or no nutrients. The alcohol in these beverages has harmful effects when consumed in excess. Current evidence suggests that moderate drinking (that is, no more than one drink per day for women and no more than two drinks

How Food Is Reported

The Continuing Survey of Food Intakes by Individuals (CSFII) included the collection of information about foods eaten on 2 nonconsecutive days using a 1-day recall for each day. Survey procedures call for the collection and coding of information on food as individuals eat it. Over 5,700 different foods were reported in the 1994-96 survey. For purposes of analysis, these foods were handled in two ways:

(1) To aggregate and summarize intakes the traditional way—in grams consumed—foods reported in the survey were combined into about 70 food groups and subgroups (Wilson and others, 1997). These groups are compared with consumption of the same food groups and subgroups in previous surveys. Mixtures (such as stew, macaroni and cheese, and pizza) were assigned to the food group of the main ingredient. For example, spaghetti, pizza, and fruit pies were assigned to the grain products' group, even though they may also contain foods from the meat, dairy, vegetable, or fruit groups. Similarly, fast-food cheeseburgers were assigned to the meat group, even though they may also contain foods from the grain, dairy, or vegetable groups. Other examples include egg salad sandwiches, which are classified with eggs, and potato salad, which is classified with potatoes. Data on components of mixtures that were mainly grain or mainly meat, poultry, or fish have previously been published with results of both the 1987-88 Nationwide Food Consumption Survey (USDA, 1993) and the 1989-91 Continuing Survey of Food Intakes by Individuals (Tippett and others, 1995).

(2) For the Pyramid servings, food mixtures were separated into their ingredients before categorizing them by the five major Pyramid food groups and the Pyramid tip (fats, oils, and sweets). Eighty-nine percent of the foods reported in CSFII 1994-96 had to be separated into ingredients in order to report servings for at least one of the Pyramid food groups (USDA, 1998b).

Researchers or other individuals who wish to compare food intake with dietary recommendations should use the Pyramid servings data. Traditional dietary intake data may be used to compare data over time. The traditional dietary data also provide information on foods as they are eaten—pizza, hamburgers, salads, etc.

per day for men) is associated with a lower risk for coronary heart disease in some individuals (USDA and DHHS, 1995). However, higher levels of alcohol intake raise the risk for high blood pressure, stroke, heart disease, certain cancers, damage to body organs, accidents, violence, suicides, birth defects, and overall mortality (USDA and DHHS, 1995). Heavy drinkers are at risk of malnutrition because alcohol contains calories that may substitute for those in more nutritious foods.

About 23 percent of men 20 years or older and about 12 percent of women 20 years and older drank liquor, wine, beer, or ale on the day of the survey—these percentages are up slightly from 1977-78. In 1994-96, consumption of alcoholic beverages by men was highest at 20-29 years and gradually declined with age.

About 84 percent of alcoholic beverage consumption was from beer and ale. Beer and ale consumption more than doubled between 1977-78 and 1994-96, from 42 grams to 87 grams daily. Alcoholic beverage consumption has been assumed to be underreported in nationwide food surveys. The increase shown here may, in part, reflect a decrease in underreporting of alcoholic beverages.

More information about the survey is available on the Internet at: [http://www.barc.usda.gov/bhnrc/foodsurvey/home.htm].

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Survey Consumption Estimates May Differ From Food Disappearance Trends

Consumption estimates from the Continuing Survey of Food Intakes by Individuals (CSFII) may not match food disappearance trends because of differences in collection methods (see also chapters 4 and 7).

Food disappearance data reflect the amount of the major food commodities entering the marketing channels, regardless of their final use. The food disappearance data estimate the total amount available for consumption as the residual after exports, industrial uses, seed and feed use, and year-end inventories are subtracted from the sum of production, beginning inventories, and imports. The use of conversion factors allows for subsequent processing, trimming, shrinkage, or loss in the distribution system. However, the estimates also include residual uses for which data are not available (such as miscellaneous nonfat uses, and changes in retail and consumer stocks). Because the food disappearance data come from market channels, the data are available only on a per capita basis and cannot be used to estimate consumption by sex, age, or demographic group.

The CSFII collects information on the kinds and amounts of foods eaten at home and away from home. The data provide estimates of food actually ingested by individuals classified by sex, age, income, race, and region.

Consumption estimates derived from food disappearance data tend to overstate actual consumption because they include spoilage and waste accumulated through the marketing system and in the home. On the other hand, survey estimates may understate actual consumption because respondents in dietary intake surveys tend to underreport what they ate. The food disappearance data are used more appropriately as indicators of trends in consumption over time, while the survey data are used appropriately as estimates of food actually eaten.

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