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Diets More Healthful, But Still Fall Short of Dietary Guidelines

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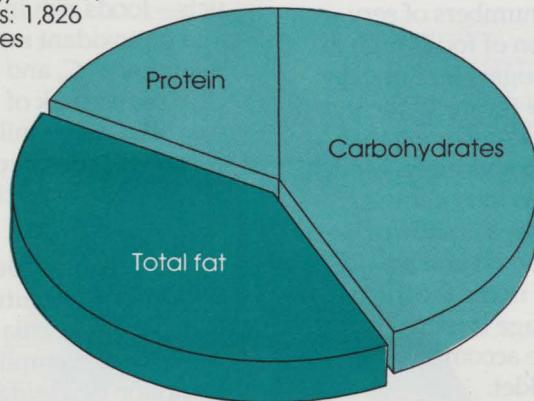
How well do our diets meet the *Dietary Guidelines for Americans*? Have changes in what we eat moved us closer to dietary recommendations made by science and health groups?

The trend toward lower fat, higher carbohydrate diets between 1977-78 and 1989-90 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 suggest that individuals are not increasing their consumption of fruit and vegetables as recommended. The large increases in the share of milk that was lowfat or skim and in the share of soft drinks that were low-calorie suggest that people are interested in limiting calories, fat, and sugar. However, the shift toward eating more mixtures—many of which may be high in fat—and drinking more of regular soft drinks suggests the opposite.

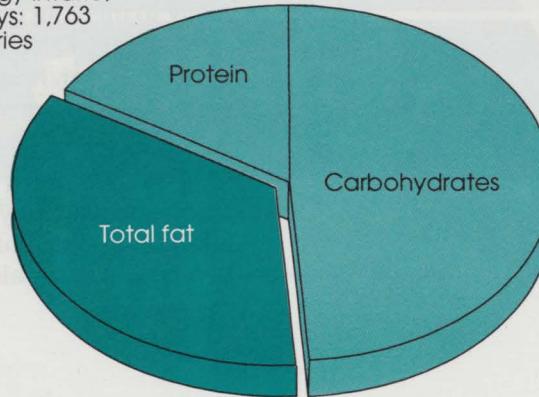
Data from the 1989 and 1990 Continuing Survey of Food Intakes by Individuals (CSFII), conducted

Figure 1
The Share of Calories From Fat Has Fallen — But it Is Still Above the Recommendation

1977-78
 Average food energy intake, 3 days: 1,826 calories



1989-90
 Average food energy intake, 3 days: 1,763 calories



Tippett is a home economist and Goldman is a mathematical statistician with the Human Nutrition Information Service, USDA.

by USDA's Human Nutrition Information Service, provide information on the type and quantity of foods individuals ate during 3 consecutive days. From this, we can assess how well Americans are following the principles for healthy eating as described in the *Dietary Guidelines for Americans*.

The estimates presented here are averages for the 7,780 individuals of all ages who provided information on their dietary intake for all 3 days. These 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.

Eat a Variety of Foods

This first Dietary Guideline aims at ensuring that we obtain all the nutrients we need from food. Because different foods supply different nutrients, a daily diet should contain an assortment of foods from each of the five major food groups: bread, cereal, rice, and pasta; vegetables; fruit; milk, yogurt, and cheese; and meat, poultry, fish, dry beans, eggs, and nuts.

One way to assess variety is to look at the types and amounts of foods consumed and the changes that have occurred over time. But that may not tell the whole story, so it is important to also look at nutrient intakes. The many foods we eat provide us with most of the nutrients we need, but as a population, our diets are still short in some nutrients.

Diets in 1989-90 differed considerably from those in 1977-78 (fig. 2). In 1989-90, we ate more mixtures that were mainly meat, poultry, or fish (such as hamburgers, stews, and chicken sandwiches) and fewer separate cuts of beef and pork (such as steaks and roasts). There was little change in the average amounts eaten of poultry and of fish and shellfish, although a greater proportion of people ate

foods from these groups. We drank less whole milk and more lowfat and skim milk than a decade earlier. We ate fewer eggs. We ate more grain products, especially grain mixtures, cereals, and pastas. We drank more carbonated soft drinks, especially low-calorie soft drinks. But, fruit and vegetable consumption changed very little—despite dietary advice to eat more.

Some of these consumption changes may indicate interest in diet and health issues. The changes also may reflect shifts in incomes and in relative food prices. And, these trends may be influenced by industry efforts to meet the public's desire for health and convenience: they have offered increased numbers and varieties of restaurants, microwave-ready products, commercially prepared convenience foods, carryout meals and home-delivered food, and super-

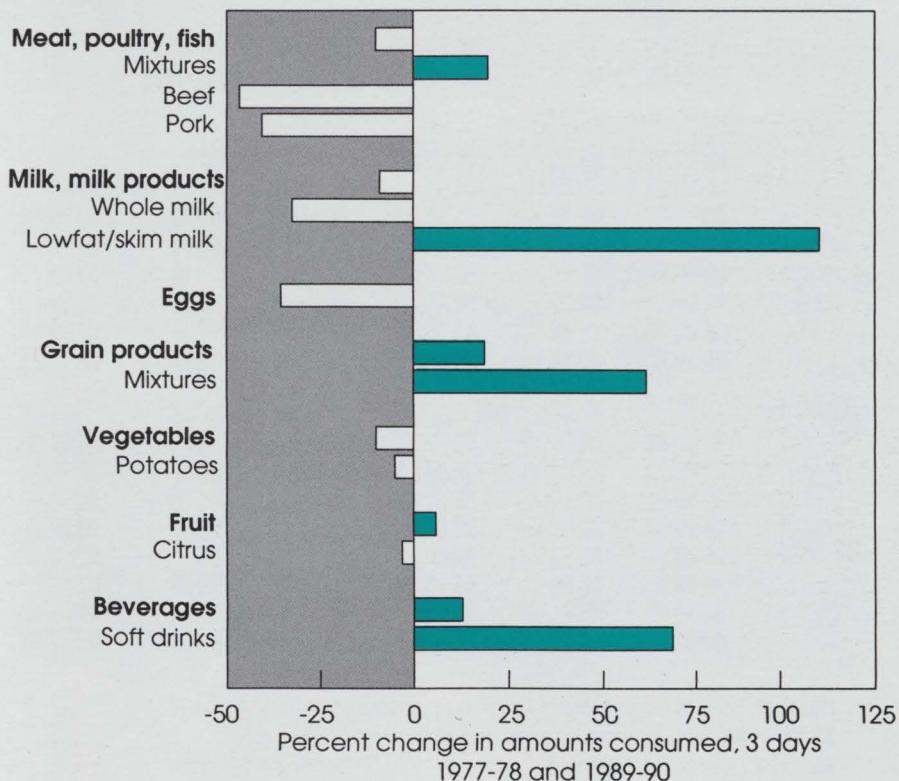
markets with bakeries, delicatessens, and salad bars.

Some of the estimated changes—such as the apparent decline in consumption of beef and pork and the lack of change in the consumption of poultry, fish and shellfish, fruit, and vegetables—are contrary to trends suggested by food disappearance data. Some of these differences may be due to the different methodologies, and to our not knowing how much meat, cheese, grains, fruit, or vegetables are included in mixed dishes (see boxes).

As a result, intake estimates for some food groups—particularly meats, cheese, vegetables, and grains—may be higher or lower than would be the case if foods in the mixtures were divided up and counted separately.

Perhaps rather than eating less of certain foods, individuals are just changing the way they eat—

Figure 2
Diets Have Changed in the Past Decade



consuming more meat in meat mixtures, for example. In 1989-90, 17 percent of individuals reported eating a hamburger (or cheeseburger or pizzaburger) at least once in 3 days—up from 10 percent in 1977-78. (Not surprisingly, a greater proportion of teenagers than of other age groups ate hamburgers.)

The wide array of foods consumed in 1989-90 provided the Recommended Dietary Allowances (RDA) for many nutrients, but not for others. In general, the nutrients that were below the RDA in 1989-90 are the same nutrients that were below the RDA a decade earlier.

Average 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. 3). (Vitamin E and zinc were not examined in 1977-78.)

Intakes of three nutrients—vitamin B-6, calcium, and zinc—were below the RDA regardless of income, but intakes were lower for low-income than for high-income individuals. Average calcium intake varied by race and was much lower for blacks (75 percent of RDA) than for whites (91 percent of RDA). Vitamin B-6 and zinc intakes were similar for blacks and whites, although both races had intakes below the RDA.

An average intake below the RDA does not necessarily mean that people in a group are malnourished. Individual nutrient requirements differ, and the RDA are set

high enough to meet the requirements of most healthy people. Thus, the RDA exceed the requirements of many individuals. However, the risk that some individuals have inadequate intakes increases as the average intake for the group falls further below the RDA.

Maintain Healthy Weight

Obesity is a major health problem in the United States. It is linked with high blood pressure, heart disease, stroke, adult-onset diabetes, and certain cancers.

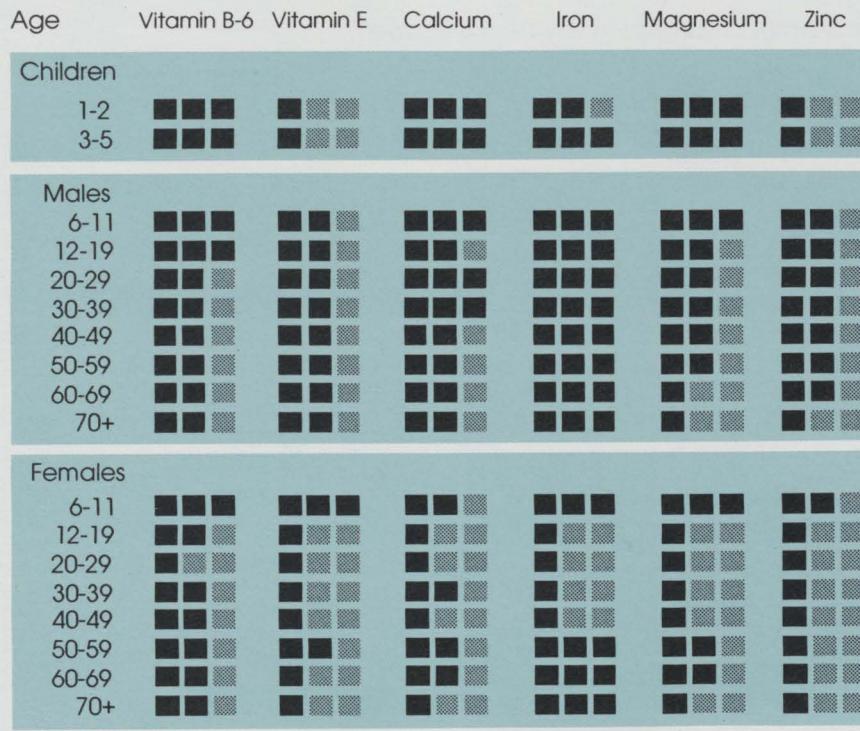
Survey respondents were classified as underweight, acceptable weight, or overweight using self-reported height and weight. A lower percentage were classified as acceptable weight in 1989-90 than in 1977-78 (table 1). Considerably more were classified as overweight—particularly men age 40 to 59 years. About 3 percent of the overweight men and 11 percent of the overweight women reported that they were on a low-calorie or weight-loss diet (for additional information on this subject, see "Attitudes and Behaviors Related to Weight Status" elsewhere in this issue).

Although the proportion of the population classified as overweight increased considerably since 1977-78, calorie levels fell slightly for most groups in the same period. The average caloric intake in 1989-90 was 1,763, compared with 1,826 in 1977-78. Men ate more than women—2,119 calories compared with 1,492 calories in 1989-90. But, on average, men also have higher energy requirements than women.

For nearly all age, income, and race groups, the reported calorie intakes were below the average recommended in the 10th edition of the Recommended Dietary Allowances. However, some evidence suggests that people participating in nutrition surveys underreport the food they eat, either by completely omitting foods or by under-

Figure 3

Intakes of Several Nutrients Below the RDA, 1989-90



█ Meets or exceeds Recommended Dietary Allowance
 █ █ 80-99% of Recommended Dietary Allowance
 █ █ █ Less than 80% of Recommended Dietary Allowance

Table 1
More People Are Overweight Than a Decade Ago

Gender and age	Underweight		Acceptable weight		Overweight	
	1977-78	1989-90	1977-78	1989-90	1977-78	1989-90
<i>Percent</i>						
Males:						
20-29 years	15	13	73	70	12	17
30-39 years	6	4	73	67	21	29
40-49 years	7	4	70	62	23	35
50-59 years	5	4	72	58	23	39
60-69 years	7	4	72	69	21	27
70 and over	12	15	76	66	12	19
20 and over	9	7	73	66	18	28
Females:						
20-29 years	14	11	72	76	14	13
30-39 years	9	7	73	67	18	26
40-49 years	5	5	70	63	25	33
50-59 years	4	2	67	60	29	38
60-69 years	4	6	64	52	32	42
70 and over	10	8	66	66	24	26
20 and over	8	7	69	65	22	28

Note: Data may not total 100 due to rounding.

estimating the amount eaten. Moreover, these average energy allowances are designed for people with light to moderate levels of physical activity, and Americans' actual level of physical activity may be lower.

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

Americans are advised to limit total fat intake to no more than 30 percent of calories and to keep saturated fat intake to less than 10 percent of calories. Many health authorities recommend a daily cholesterol intake of less than 300 milligrams (mg).

In 1989-90, total fat provided 35 percent of calories, and saturated fat supplied about 12.5 percent—with little difference by sex, age, income, or race. Although the percentage of calories from fat in our diets is above the recommendation, it is down considerably from the 40-percent level in 1977-78.

Cholesterol intakes averaged 259 milligrams in 1989-90, but were considerably higher for men than for women. Among men, average cholesterol intakes ranged from 296 milligrams for those age 70 and over to 365 milligrams for those age 20 to 29 years. Cholesterol intake was not measured in 1977-78, so no comparisons are possible.

A much higher percentage of both men and women had 3-day intakes that met the recommendation for cholesterol than met the recommendations for total fat and saturated fat. About one-fifth of men and one-fourth of women had diets that met the recommendations for fat; similar proportions met the recommendation for saturated fat. About half of the men and four-fifths of the women had diets that met the recommendation for cholesterol. Only 11 percent of men and 17 percent of women had diets that met all three recommendations (for additional information, see "Diet-Health Awareness About Fat and Cholesterol—Only a Start" elsewhere in this issue).



More lower-fat products and changes in food choices have probably contributed to the reduced percentage of energy from fat. For example, our intake of whole fluid milk fell 32 percent between 1977-78 and 1989-90, while that of low-fat/skim milk rose 108 percent.

How Food Is Reported

The CSFII collected information about foods eaten over 3 days. Over 3,500 foods were reported in 1989-90. For purposes of analyses, these foods were combined into about 70 food groups and subgroups.

Survey procedures call for the collection of information on food as individuals eat it. Foods are coded and then assigned to one of the food groups and subgroups.

Mixtures, such as stew, macaroni and cheese, and sandwiches, are assigned to the food group of the main ingredient. For example, spaghetti, pizza, and fruit pies are assigned to the grain products' group, even though they may also contain foods from the meat, dairy, vegetable, or fruit groups. Similarly, ham sandwiches and cheeseburgers are assigned to the meat group, even though they also contain foods from the grain, dairy, or vegetable groups.

Work is underway to break these mixtures into their component parts for assignment to

the appropriate group. Data on mixtures that were mainly grain or mainly meat, poultry, fish were published with the 1987-88 Nationwide Food Consumption Survey.

In this article, the meat, poultry, fish group includes beef, pork, lamb, veal, game, frankfurters, sausages, luncheon meats, poultry, and fish and shellfish, as well as mixtures in which the main component is meat, poultry, or fish.

Grain products include yeast breads and rolls, cereals and pastas, quick breads, pancakes, french toast, cakes, cookies, pastries, pies, crackers, popcorn, pretzels, and corn chips, as well as grain mixtures (mixtures in which a grain product is the main ingredient, such as pizza, tacos, or macaroni). Other food groups also include mixtures. For example, egg salad sandwiches are classified with eggs, and potato salad is classified with potatoes.

(See box at the end of this article for details about consumption estimates.)

More lower-fat products, leaner meats, and changes in food choices have probably contributed to the reduced percentage of energy from fat. For example, our intake of whole fluid milk fell by nearly a third (down 32 percent) between 1977-78 and 1989-90, while our intakes of lowfat/skim milk rose 108 percent. In 1989-90, older Americans drank larger proportions of their milk as lowfat or skim milk than did younger age groups—possibly because older people are more aware of dietary guidance to reduce fat or are more concerned about health than are younger people. Whites drank a larger proportion of their milk as lowfat or skim milk than blacks. The proportion of milk that was lowfat or skim milk also increased with income (fig. 4).

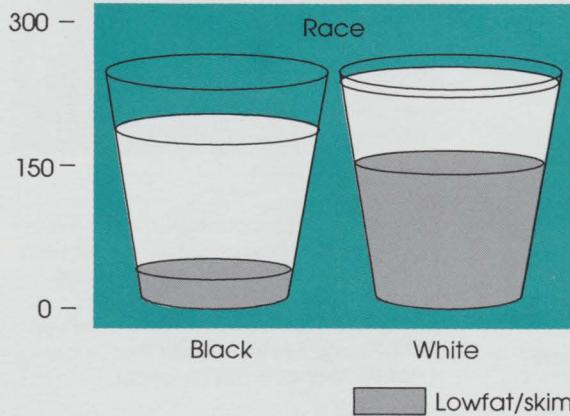
Choose a Diet With Plenty of Vegetables, Fruits, and Grains

The Dietary Guidelines used to stress the importance of complex carbohydrates and dietary fiber in a healthy diet. The 1990 edition was revised to focus on the foods that contain these dietary components. Adults are now advised to eat at least three servings of vegetables and two servings of fruit each

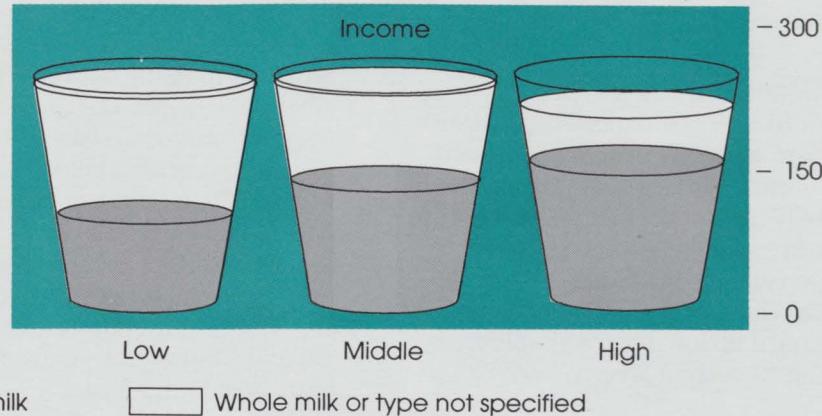
Figure 4

Consumption of Lowfat/Skim Milk Is Higher for Some Population Groups

Total fluid milk, grams, 3-days, 1989-90



Total fluid milk, grams, 3-days, 1989-90



day, as well as six servings of grain products.

Average intake of grain products increased by 19 percent between 1977-78 and 1989-90, with consumption of grain mixtures up 62 percent (fig. 2). In both surveys, almost everyone ate some grain products. The percentage eating grain mixtures rose from 45 to 60 percent.

Pizzas illustrate how consumption of grain mixtures increased over the decade. The amount of pizza consumed tripled from 6 to 19 grams per day between 1977-78 and 1989-90, and the percentage of people eating pizza at least once in 3 days grew from 10 to 23 percent. In 1989-90, children ages 6 to 11 years were the biggest consumers of pizza—45 percent of boys and 39 percent of girls this age ate pizza at least once in the 3-day survey period.

Between 1977-78 and 1989-90, the average intake of vegetables (in grams) declined by about 10 percent (fig. 2). However, this consumption may be underestimated, because vegetables are frequently eaten as part of mixtures (such as carrots or potatoes in stews and tomatoes in sandwiches, casseroles, or pizza) and would be grouped with the main ingredient (meat or grain mixtures). Most individuals ate vegetables at least once in 3 days in both 1977-78 and 1989-90.

In 1989-90, consumption of white potatoes made up one-third of total vegetable consumption—eaten by three-fourths of the respondents at least once in 3 days. Overall, about 15 percent of the intake of potatoes was in the form of french fries (not including potato chips, potato skins, or other types of fried potatoes). The proportion of white potatoes eaten as french fries was highest among males under age 30 and females under age 20.

Fruit consumption was about the same in 1989-90 as in 1977-78.



Pizzas illustrate the 62-percent increase in the consumption of grain mixtures between 1977-78 and 1989-90. The amount of pizza consumed tripled, and the percentage of people eating pizza at least once in 3 days grew from 10 to 23 percent.

In both surveys, only three-fourths of individuals ate fruit or drank fruit juice at least once over 3 days; the remainder consumed no fruit at all during those days.

Vegetables and fruit are major sources of vitamins A and C in the diet. Although average intakes by all sex and age groups for both vitamins are above the RDA, the averages conceal variations. For women age 20 years and over who ate no fruit, average intakes of vitamin C ranged from 60 to 81 percent of the RDA, compared with 126 to 166 percent of the RDA for all women. Individuals who ate no fruit in the 3 days also consumed more calories from fat (37 percent) than did all individuals (35 percent).

The average intake of fiber in 1989-90 was 13 grams. Men tended to consume more fiber (16 grams) than did women (12 grams). Although the Dietary Guidelines make no recommendation on the amount of fiber that should be consumed, these levels fall well below the 20 to 30 grams recommended by the National Cancer Institute

(for additional information on fiber, see "Fiber: Not Enough of a Good Thing?" elsewhere in this issue).

Use Sugars Only in Moderation

Currently, it's impossible to examine intakes of total sugars in the diet using the CSFII because the survey nutrient database does not include total sugar. However, food disappearance data suggest that sugar consumption is on the rise.

Much of the sugar we eat is found as an ingredient in other foods, such as cookies or cakes, sweetened beverages, and other processed foods. This makes it difficult for people to know how much sugar they are actually consuming, or to realize that their consumption of sugar is increasing.

For example, in 1977-78, consumption of soft drinks was about half the consumption of either milk or coffee. By 1989-90, however, the amounts were almost equal. While average milk and coffee consump-

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 the collection methods.

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 allow 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 nonfood 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 consump-

tion 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 for 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 underestimate actual consumption because respondents in surveys tend to underreport what they ate. Thus, the food disappearance estimates may be viewed as representing an upper estimate of consumption, while the CSFII data represent a lower estimate. The food disappearance data are used more appropriately as indicators of trends in consumption over time, while the survey data are used appropriately as measurements of food actually eaten.

tion stayed about the same, soft drink consumption increased 69 percent from 141 grams to 238 grams (an 8-ounce cup of fluid milk, coffee, or soda weighs about 245 grams). Although the intake of low-calorie soft drinks more than tripled from 20 grams in 1977-78 to 62 grams in 1989-90, the sugar-sweetened type makes up about three-fourths of the total consumption of soft drinks.

Use Salt and Sodium Only in Moderation

The Food and Nutrition Board of the National Academy of Sciences has recommended that daily intakes of salt (sodium chloride) be limited to 6 grams. This translates into a daily sodium intake of 2,400 milligrams.

The average intake of sodium in 1989-90 was 2,946 milligrams—3,701 milligrams for men and 2,397 milligrams for women. (Intakes of sodium were not examined in 1977-78.) However, these intakes are underestimated because they do not include salt added at the table. ■