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Popularity of Dining Out Presents Barrier to Dietary Improvements

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Americans are dining out more often than ever, boosting the amount spent at eating places from 26 percent of food expenditures in 1970 to 39 percent in 1996. This trend may lower the nutritional quality of consumers' diets, since food away from home is generally higher in fat and saturated fat, and lower in fiber and calcium than is food at home.

Food at home is that purchased at retail stores; food away from home consists of foods obtained from foodservice and entertainment establishments—see box for more details.

An analysis of USDA's food intake survey data covering the past two decades allowed us to compare the nutritional quality of foods at and away from home and examine how it has changed over time. This article focuses on nutrients of current public-health concern: high intake of total fat, saturated fat, cholesterol, and sodium, and low intake of fiber, calcium, and iron.

Comparisons are based on the nutrient density of foods at and away from home, which measures the amount of a nutrient or food component per 1,000 calories provided by a food. Nutrient density for fat and saturated fat reflects the proportion of total calories from these two nutrients, because dietary recommendations for fat and saturated fat are expressed in terms of total calories consumed.

For each nutrient or food component, we also devised a measure we term "benchmark" density. Obtained by dividing the recommendation for a given nutrient or food component (table 1) by an individual's reported caloric intake in 1,000 calories, the benchmark density represents the nutrient density an individual's diet would have to attain to meet the dietary recommendation at the individual's caloric intake level. Because caloric intake varies over time, benchmark density also varies from year to year.

More Frequent Snacking and Dining Out

Over the past two decades, the number of meals consumed has remained fairly stable at 2.6-2.7 per person per day (table 2). However, snacking has increased—from less than once a day in 1987-88 to 1.6 times a day in 1995.

The proportion of meals away from home increased from 16 percent in 1977-78 to 29 percent in 1995, and the proportion of snacks away from home rose from 17 to 22 percent. The frequency of dining out increased by more than two-thirds over the past two decades, rising from 16 percent of all eating occasions (meals and snacks) in 1977-78 to 27 percent in 1995.

Average intake away from home rose from 18 percent of total calories in 1977-78 to 34 percent in 1995 (table 3). In 1977-78, each percent of eating occasion away from home provided an average of 1.13 percent of total calories, suggesting that when eating out people are either eating more, eating higher caloric foods, or both than when they eat at home. The caloric content of away-from-home eating occasions relative to home eating occasions grew even higher in recent years, with each percent of eating occasion away from home accounting for 1.26 percent of total calories in 1995. While fast-food places and restaurants each accounted for 3 percent of caloric intake in 1977-78, their shares increased to 12 percent and 8 percent, respectively, in 1995. The share of total caloric intake consumed at school has remained stable over the past two decades at 2-3 percent.

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Declining Proportion of Calories From Fat and Saturated Fat

According to the *Dietary Guidelines for Americans*, fat intake should be limited to 30 percent or less of total calories, and saturated fat should account for less than 10 percent of total calories. These recommendations represent the benchmark densities for fat and saturated fat.

Over the past two decades, Americans have made appreciable progress in reducing the fat density in the foods they consume. Fat provided an average of 33.6 percent of total calories in 1995—albeit still higher than the recommended limit (see chart page), this is down considerably from 41.1 percent in 1977-78. In the earlier period, both home foods and away-from-home foods provided slightly more than 41 percent of their calories from fat. Since then, the fat density of home foods declined steadily to 31.5 percent by 1995, but that of away-from-home foods declined slightly to 37.6 percent.

Restaurant foods had a considerably higher fat density than either fast foods or school foods in 1977-78, with fat providing over 46 percent of calories (see chart page). Although the fat density of restaurant foods declined to 40.1 percent by 1995, this was still higher than the fat densities of fast foods or school foods. The fat density of fast foods also declined (from 41.6 percent in 1977-78), and has fluctuated at slightly below 40 percent of total calories since 1987-88. The fat density in school foods declined steadily from 40.1 percent to 35.7 percent between 1977-78 and 1995.

As with fat, the saturated fat density of American diets has also declined steadily since 1987-88, when it was first measured (see

chart page). Home foods typically have had a lower saturated fat density than away-from-home foods, and the saturated fat density of both types of foods experienced similar

declines through 1994. The saturated fat density of food at home continued to decline between 1994 and 1995, but that of food away from home rose slightly.

Data Cover 1977 Through 1995

The findings reported in this article are based on almost 20 years' worth of data from USDA's food consumption surveys. We analyzed data from seven year-round national surveys of individual food intake, including the Nationwide Food Consumption Survey (NFCS) 1977-78, NFCS 1987-88, the Continuing Survey of Food Intakes by Individuals (CSFII) 1989, CSFII 1990, CSFII 1991, CSFII 1994, and CSFII 1995.

Data collected earlier than 1977 were excluded because they were not comparable to later surveys. For example, the 1965 data included only the spring quarter and only "housekeeping households"—households with at least 1 person having 10 or more meals from the household food supply during a 7-day period. The CSFII 1985-86 data also were excluded because they did not include all age/gender groups. The CSFII 1996 was in progress when this study was underway.

Only the first day of data from each survey were analyzed to form the basis for a consistent comparison. Because the *Dietary Guidelines for Americans* are not aimed at individuals under age 2, those children were excluded. Pregnant and lactating women were also excluded because their dietary needs differ considerably from the rest of the population.

Underreporting is a potential problem with dietary recall surveys such as NFCS and CSFII, as respondents may forget to record the donut they ate on the way to work or the candy bar snack in the afternoon. Therefore, energy and nutrient intakes in NFCS and CSFII may represent the lower limits of actual intakes. However,

improvements in data-probing techniques have provided more accurate intake estimates. In fact, some of the increases in energy and nutrient intakes reported in USDA surveys could be attributed to improved survey methodology.

We define home foods and away-from-home foods based on where the foods are obtained, not where they are eaten. Food at home consists of foods purchased at a retail store, such as a grocery store, a convenience store, or a supermarket. Food away from home consists of foods obtained at various eating places (mainly food-service establishments). Our distinction between home foods and away-from-home foods is related to the degree of control a consumer has over the nutritional content of the food.

Sources of away-from-home foods are grouped into four categories: fast-food places, schools, restaurants, and others. Fast-food places include self-service restaurants and carryout places. Schools—a separate category for children between the ages of 2 and 17—also include daycare centers and summer camps. Restaurants are those eating places with waiter service. Others is a catchall category that includes cafeterias, residential dining facilities, bars, soup kitchens, shelters, Meals on Wheels and other community feeding programs, vending machines, and meals eaten in someone else's home or received as a gift. Meals and snacks consisting of a combination of away-from-home and home foods are classified according to the component that contributes the most calories to that particular eating occasion.

Table 1
Recommended Daily Intakes of Selected Dietary Components

Gender and age	Calories ¹	Fat ²	Saturated fat ²	Cholesterol ³	Sodium ⁴	Fiber ⁵	Calcium ⁶	Iron ⁶
	Number	Percent	Percent	Milligrams	Milligrams	Grams	Milligrams	Milligrams
Males and females:								
2-3	1,300	<30	<10	300	2,400	Age+5/day	800	10
4-6	1,800	<30	<10	300	2,400	Age+5/day	800	10
7-10	2,000	<30	<10	300	2,400	Age+5/day	800	10
Males:								
11-14	2,500	<30	<10	300	2,400	Age+5/day	1,200	12
15-18	3,000	<30	<10	300	2,400	Age+5/day	1,200	12
19-20	2,900	<30	<10	300	2,400	Age+5/day	1,200	10
21-24	2,900	<30	<10	300	2,400	11.5/1,000 kcal	1,200	10
25-50	2,900	<30	<10	300	2,400	11.5/1,000 kcal	800	10
51 and over	2,300	<30	<10	300	2,400	11.5/1,000 kcal	800	10
Females:								
11-14	2,200	<30	<10	300	2,400	Age+5/day	1,200	15
15-18	2,000	<30	<10	300	2,400	Age+5/day	1,200	15
19-20	2,000	<30	<10	300	2,400	Age+5/day	1,200	15
21-24	2,000	<30	<10	300	2,400	11.5/1,000 kcal	1,200	15
25-50	2,000	<30	<10	300	2,400	11.5/1,000 kcal	800	15
51 and over	1,900	<30	<10	300	2,400	11.5/1,000 kcal	800	10

Notes: ¹National Research Council’s Recommended Energy Allowances. ²*Dietary Guidelines for Americans*. ³U.S. Food and Drug Administration’s (FDA) Daily Values. ⁴National Research Council’s recommendations. ⁵American Health Foundation’s recommendation for “age plus five” per day and FDA’s Daily Value for 11.5 grams per 1,000 calories. ⁶National Research Council’s Recommended Daily Allowances (1989).

In 1987-88, the saturated fat density of restaurant and fast foods was similar—and higher than school foods (see chart page). The saturated fat density of both restaurant foods and fast foods declined sharply between 1987-88 and 1989. The saturated fat density of restaurant foods continued to decline during the first half of 1990’s, while the saturated fat density in fast foods rose. The saturated fat in school foods rose from 13.9 percent of total calories in 1987-88 to 16.1 percent in 1990, then declined steadily to 14.2 percent in 1995—higher than the saturated fat density of foods at restaurants and fast-food places.

The fat and saturated fat densities of food at and away from home have been declining, although the

away-from-home sector has shown less improvement. With the increasingly important role of the away-from-home sector in the overall diet, the fat and saturated fat density of food away from home will be a key to consumers’ progress in reducing their intakes of fat and saturated fat.

Cholesterol Levels Falling Faster for Home Foods

Many health authorities recommend that daily cholesterol intake should not exceed 300 milligrams (mg), which is used in the U.S. Food and Drug Administration’s (FDA) Daily Values (DV) for nutrition labeling. Because this recommended cholesterol intake is fixed regardless of caloric intake and because average caloric intake has increased since 1987-88, the benchmark cho-

lesterol density has declined since then (see chart page).

Average cholesterol intake has declined since 1987-88 (when the cholesterol content of Americans’ diets was first measured) from 286 mg to 268 mg in 1995. Between 1987-88 and 1990, the cholesterol density of home foods was actually higher than that of away-from-home foods. However, the relationship reversed after 1990, indicating that consumers have been more successful in reducing their cholesterol intake from home foods than from away-from-home foods. Although restaurant foods have a higher cholesterol density than food from fast-food places and schools, all three sources have experienced an overall downward trend (see chart page).

Cholesterol levels are of particular concern for teenage boys and men. Male adolescents and adults tend to eat more than others, yet they face the same recommended cholesterol intake as others. In 1995, males ages 12-39 consumed an average of 2,763 calories per day, which translates into a benchmark cholesterol density of 109 mg per 1,000 calories. That compares with cholesterol densities for home and away-from-home foods eaten by males ages 12-39 of 122 and 127 mg, respectively. To meet the cholesterol recommendation, male adolescents and adults have to watch the cholesterol content of their food choices both at and away from home. Consumers must be especially vigilant at restaurants, where cholesterol density was 176 mg in 1995.

Sodium Gap Worsening

The National Academy of Sciences' *Diet and Health Report* recommends that consumption of sodium not exceed 2,400 mg per day, regardless of age and gender. As with cholesterol, individuals who consume more calories have lower benchmark sodium density values than do those getting fewer calories. Sodium intake reported in the surveys includes sodium occurring naturally in foods, added in food processing, and used in food preparation. It does not include sodium added at the table. The surveys first measured sodium content in 1987-88.

Consumers consume excess sodium (see chart page). Because of rising caloric intake, sodium benchmark density has declined over time, indicating that Americans need to limit the sodium density of their diets more than they did before when it was already too high. The sodium densities of home and away-from-home foods are fairly similar, and both are substantially

higher than the benchmark density. More importantly, the gap between the sodium density and the benchmark density has widened during the past two decades. As a result, those ages 2 and older who meet the sodium recommendation declined from 41 percent in 1987-88 to 34 percent in 1995.

The sodium density of restaurant foods rose sharply between 1989 and 1990, but it has declined since 1991 (see chart page). The sodium densities of fast foods generally rose during the past 10 years, while that of school foods declined during the late 1980's, but rose back to the 1987-88 level in 1994-95.

Foods Away From Home Lower in Calcium

The 1989 Recommended Daily Allowances (RDA) for calcium used in this analysis were 1,200 mg for those ages 11-24 and 800 mg for all others. In August 1997, the Institute of Medicine of the National Academy of Sciences issued new dietary recommendations for several nutrients, including calcium. The report raises the recommended calcium intakes for many Americans, especially children ages 9 and older and adults ages 25 and older (see "Milk and Milk Products: Their Importance in the American Diet," elsewhere in this issue). Insufficient calcium intake is a more severe problem facing females (adolescents and adults) because of their higher calcium requirements and their lower food consumption. In 1995, for example, only 18 percent of adolescent girls ages 12-17 met the 1989 calcium RDA's.

Calcium density of all foods rose between 1977-78 and 1990 and then declined (see chart page). Meanwhile, rising caloric intake since 1987-88 is associated with a declining benchmark calcium density. The result is that more people are coming closer to the recommendation,

as seen in the gap between average calcium density and benchmark calcium density becoming narrower over time. In 1995, 36 percent of individuals ages 2 and older met the calcium RDA, up from 31 percent in 1977-78.

However, the trend toward increased consumption of fast foods or restaurant foods will slow progress in reaching calcium intake recommendations. Calcium density in home foods generally rose, while that in away-from-home foods declined slightly. In 1995, the calcium density of home foods was 425 mg per 1,000 calories, fairly close to the benchmark density. Away-from-home foods had a calcium density of 343 mg, which was 21 percent below the benchmark level.

The calcium density of school foods has always been considerably higher than that of restaurant or fast foods—and even home foods (see chart page). School foods had a calcium density of 689 mg in 1995—62 percent higher than that of home foods, almost double that of fast foods, and more than double the level in restaurant foods.

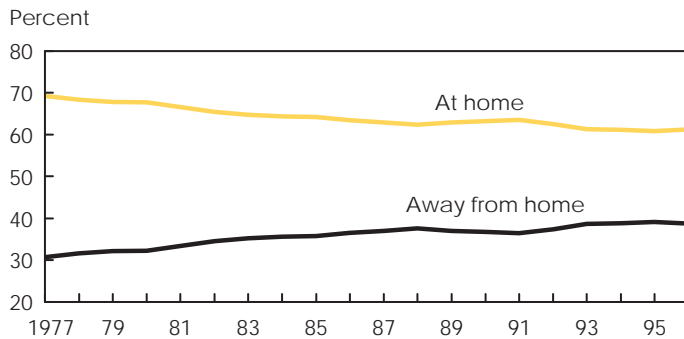
Dietary Fiber Is Low, Regardless of Where Food Is Bought...

The American Health Foundation recommends a dietary fiber intake of "age plus five" for those ages 2-20, and the FDA uses a DV of 11.5 grams per 1,000 calories. We use the "age plus five" recommendation for those ages 2-20 years, and the FDA's DV for those over age 20.

Over the past decade, fiber densities of home and away-from-home foods have increased slightly, but they still remain far below the benchmark (see chart page). Home foods had a fiber density of 8.1 grams per 1,000 calories in 1995,

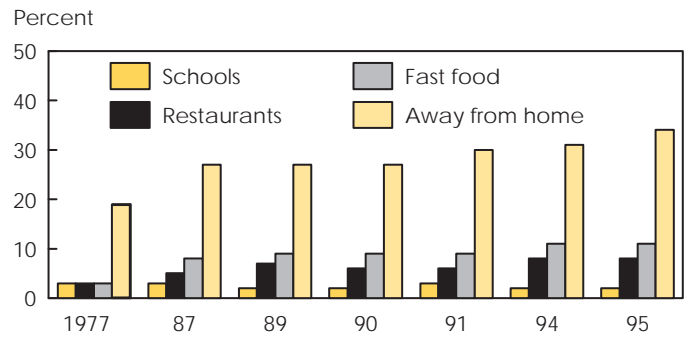
Food Away From Home Is Generally Higher in Fat and Saturated Fat, and Lower in Fiber and Calcium Than Is Food at Home

Share of Food Budget



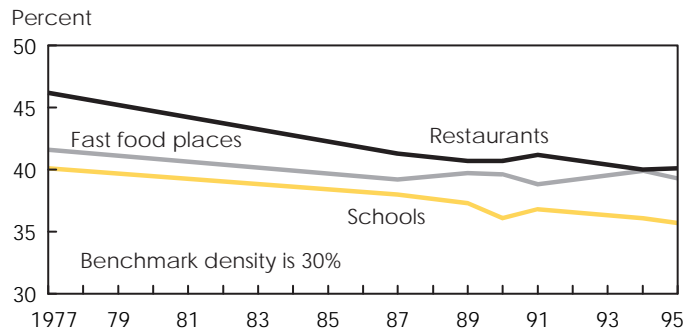
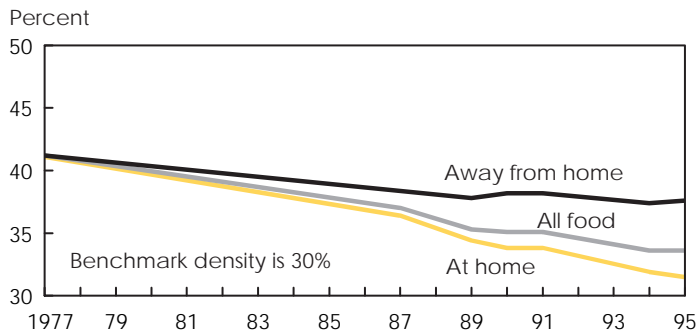
All foods

Proportion of Calories

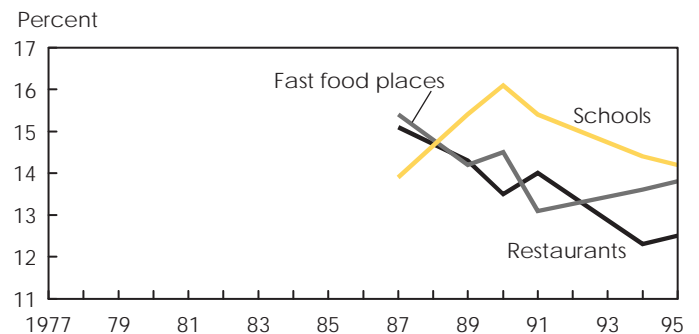
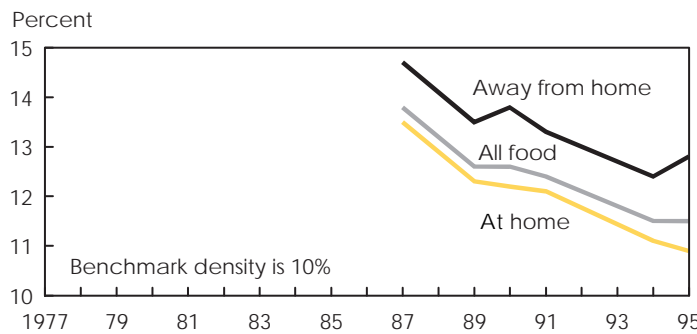


Away from home

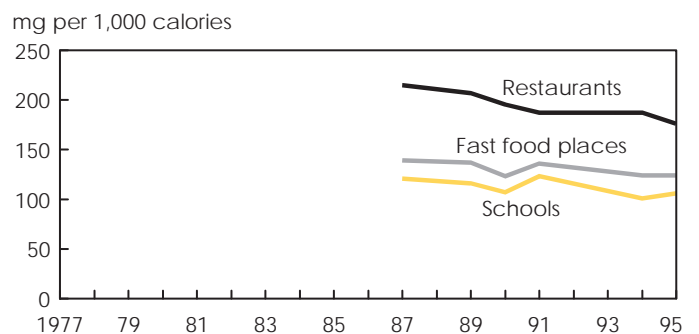
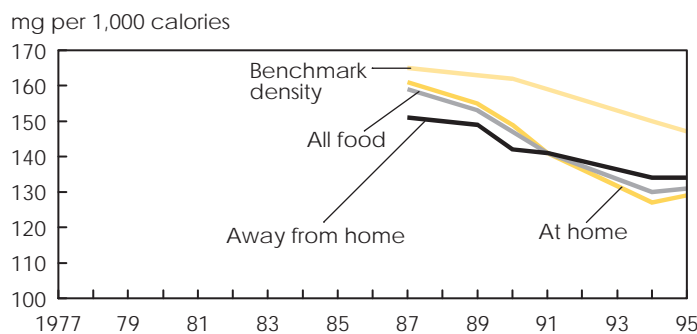
Share of Calories From Fat



Share of Calories From Saturated Fat



Cholesterol Density

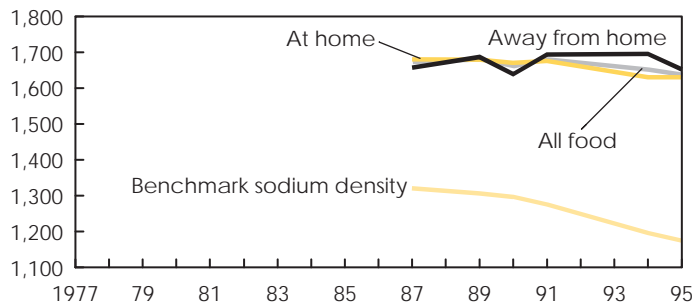


All foods

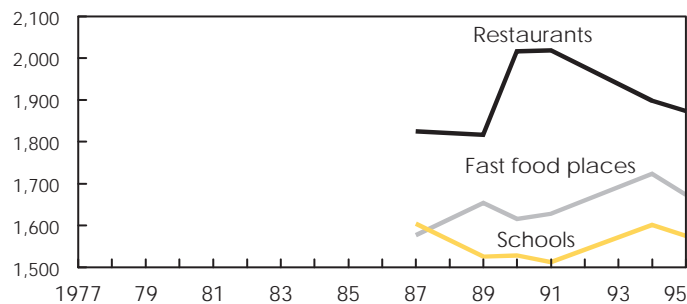
Away from home

Sodium Density

mg per 1,000 calories

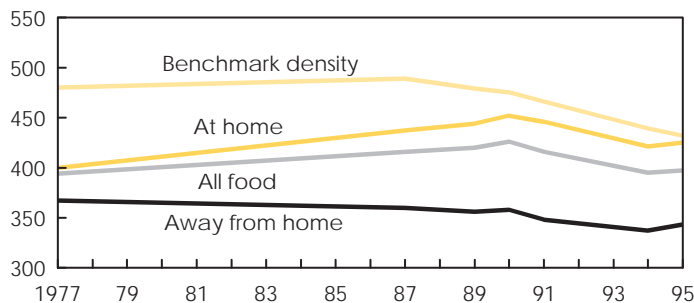


mg per 1,000 calories

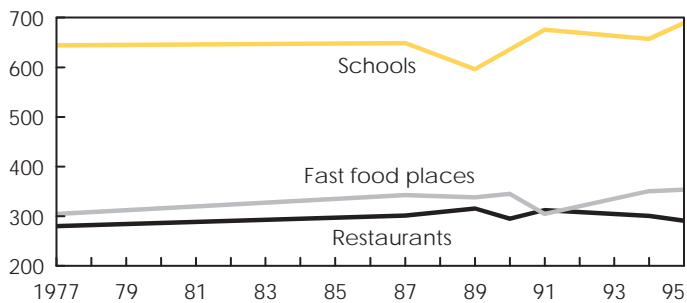


Calcium Density

mg per 1,000 calories

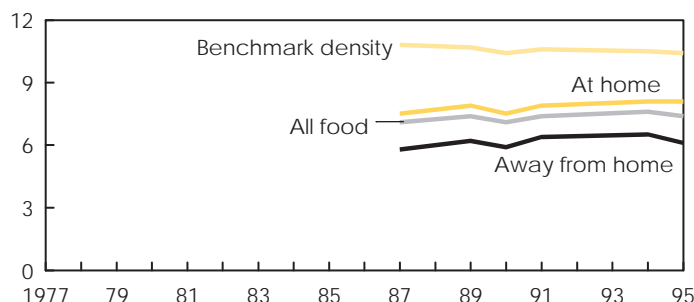


mg per 1,000 calories

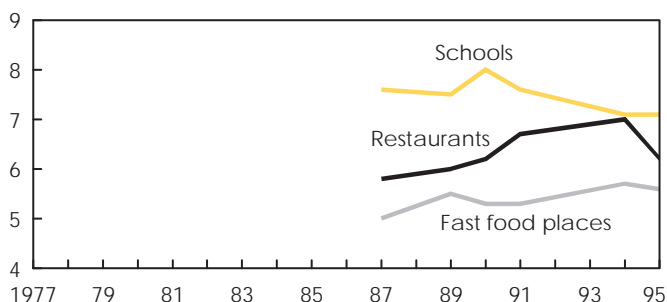


Fiber Density

grams per 1,000 calories

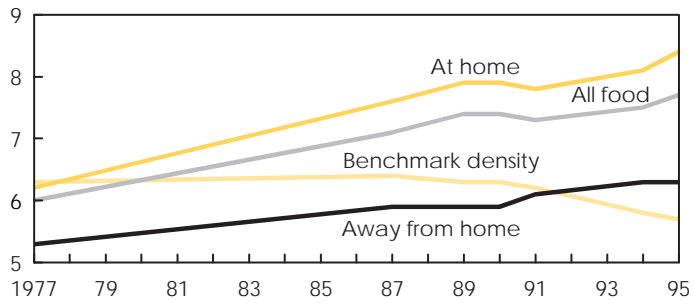


grams per 1,000 calories

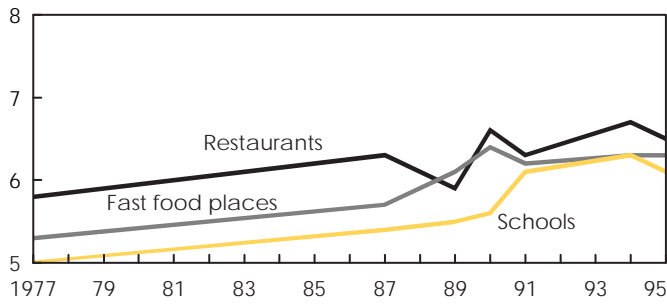


Iron Density

mg per 1,000 calories



mg per 1,000 calories



Note: Share of food budget is based on Putnam and Allhouse, 1996. All others are compiled by ERS from NFCS 1977-78, NFCS 1987-88, CSFII 1989-91 and CSFII 1994-95, first-day intake data.

Table 2
Snacking and Eating Out Have Become Popular

Eating occasion	1977-78	1987-88	1989	1990	1991	1994	1995
<i>Number</i>							
Total meals	2.7	2.6	2.6	2.6	2.6	2.7	2.6
Total snacks	1.1	.9	1.2	1.2	1.4	1.5	1.6
<i>Percent</i>							
Meals:							
At home	84	76	76	77	73	72	71
Away from home ¹	16	24	24	23	27	28	29
Snacks:							
At home	83	80	80	82	82	79	78
Away from home ¹	17	20	20	18	18	21	22
All eating occasions:							
At home	84	77	77	78	76	74	73
Away from home ¹	16	23	23	22	24	26	27
Restaurants	2	4	4	4	4	6	5
Fast foods	3	7	7	7	7	8	9
Schools ²	3	2	2	2	3	2	2

Notes: ¹Away from home is the aggregate of fast foods, restaurants, schools, and others not reported. ²Schools are classified as a separate category for children only. Sources: Compiled by ERS from Nationwide Food Consumption Survey 1977-78 and 1987-88, Continuing Survey of Food Intakes by Individuals 1989-91 and 1994-95, first-day intake data.

about three-fourths of the benchmark level, and away-from-home foods had a fiber density of 6.1 grams. In 1995, fiber intake averaged 15.2 grams per day, and only 24 percent of individuals ages 2 and older met the fiber intake recommendations.

School foods have had the highest fiber density of the three main sources of food away from home (see chart page). However, after reaching its peak at 8.0 grams per 1,000 calories in 1990, the fiber density of school foods declined to 7.1 grams in 1994 and 1995. The fiber density of fast foods has shown a general upward trend; however, its 5.6 grams in 1995 was the lowest among all foods. The fiber density of restaurant foods increased from 5.8 grams in 1987-88 to 7.0 grams in 1994, then fell to 6.2 grams in 1995.

The increased popularity in dining at fast-food places and restaurants may reverse the little progress Americans have made in increasing their fiber intake.

...But Iron Is Up

The RDA's for iron are 12 mg for males ages 11-18, 15 mg for females ages 11-50, and 10 mg for others ages 2 and older. Over the past two decades, iron density has risen faster for food at home than for food away from home (see chart page). The increased iron density in home foods can be attributed partially to increased consumption of iron-fortified breakfast cereals. Mean daily dietary iron consumption of those ages 2 and above has exceeded the RDA's since 1987-88. In 1995, 61 percent of all individuals ages 2 and older met their dietary iron RDA's, compared with only 42 percent in 1977-78.

The iron density of foods served at fast-food places, schools, and restaurants has risen over the past two decades (see chart page). Although restaurant foods have a higher iron density than fast foods or school foods, the differences in the iron density between these three major away-from-home food sources have narrowed over time.

While most people consume the recommended amounts of dietary iron, low intake is common when it comes to adolescent girls and women—those with the highest requirements and typically low food consumption. Only one in every three women ages 18-39 met their iron RDA's in 1995. Home foods consumed by those women had an iron density of 8.2 mg per 1,000 calories and away-from-home foods contained 6.0 mg of dietary iron,

Table 3

Food Away From Home Accounted for a Third of Total Caloric Intake in Recent Years

Caloric intake	1977-78	1987-88	1989	1990	1991	1994	1995
<i>Number</i>							
Average intake	1,876	1,807	1,837	1,853	1,883	2,006	2,043
<i>Percent</i>							
Meals:							
Share of total calories:							
At home	82	73	73	74	71	69	66
Away from home ¹	18	27	27	26	29	31	34
Restaurants	3	5	7	6	6	8	8
Fast foods	3	8	9	9	9	11	12
Schools ²	3	3	2	2	3	2	2

Notes: ¹Away from home is the aggregate of fast foods, restaurants, schools, and others not reported. ²Schools are classified as a separate category for children only. Sources: Compiled by ERS from Nationwide Food Consumption Survey 1977-78 and 1987-88, Continuing Survey of Food Intakes by Individuals 1989-91 and 1994-95, first-day intake data.

compared with a benchmark density of 8.4 mg. Therefore, the increased popularity of dining out may exacerbate the problem of low iron intake among some women.

New Strategies Needed To Improve Food Choices When Eating Out

Over the past two decades, Americans have progressed markedly in reducing the density of fat, saturated fat, and cholesterol in their diets and in increasing their iron density. Increasing iron densities of foods at and away from home have resulted in a higher proportion of Americans consuming sufficient dietary iron. However, low iron intakes remain a problem for many adolescent girls and women.

However, little progress has been made in increasing the fiber or calcium density or in reducing the sodium density. Although home foods are typically more fiber- and calcium-dense than are away-from-home foods, the fiber and calcium density of home foods has remained

below the benchmark density. School foods have consistently been more calcium-dense than home foods throughout the past two decades. However, the calcium density of school foods is lower for older children, suggesting that children choose foods less dense in calcium as they grow older. This points out the importance of educating children in improving their food choices at school and elsewhere.

There has been little reduction in the sodium density of foods, and overall food consumption as measured by caloric intake has increased. As a result, more people exceeded the recommendations for sodium intake in 1995 than in 1987-88. Although away-from-home foods have a slightly higher sodium density than do home foods, the difference is so small that sodium intake has to be reduced greatly at and away from home in order to meet recommendations.

Away-from-home foods generally contain more of the nutrients overconsumed and less of the nutrients underconsumed in the United States. The fat and saturated fat density of away-from-home foods has

not declined as much as for home foods. The cholesterol density of restaurant foods remains considerably higher than that of other food sources. As a result, the increased popularity of dining out presents a barrier to dietary improvements—particularly in terms of reducing intakes of calories, fat, saturated fat, and cholesterol.

Since the trend of eating out more is not expected to reverse, nutrition policy, education, and promotion strategies are needed to improve the nutritional quality of food choices made away from home. In the case of school meals, the Healthy Meals for Healthy Americans Act of 1994 (Public Law 103-448) now requires meals served as part of the National School Lunch and School Breakfast Programs to meet the *Dietary Guidelines for Americans*. But no meal, however healthy, will have an effect on health unless it is eaten. Team Nutrition is USDA's national program developed to help schools successfully implement the *Dietary Guidelines for Americans* in school meals. Team Nutrition also provides nutrition education through schools,

families, the community, and the media to motivate children to make healthier food choices in and outside of school.

In the case of meals eaten at restaurants, fast-food places, and other foodservice establishments, however, consumer demand is the key for change. Currently, it appears that consumers are less likely to value the nutritional properties of foods when eating away from home than when eating at home. Several fast-food chains have introduced reduced-fat hamburgers, for example, but later withdrew them from the menu because of low sales. And, a number of restaurant operators claim that although consumers say they want healthful foods, that is not what they typically order.

Perhaps consumers consider eating out to be an occasional treat that does not have the same effect on overall diet as food at home does. This attitude may have been reasonable 20 years ago when eating out was much more infrequent, but that belief has become increasingly inappropriate as eating out has become more common. Consumers may not realize the extent to which eating out has become a part of their usual diets or its effect on overall diet quality. To the degree that consumer attitudes are a barrier to change (see "Matching Perception and Reality in Our Diets," elsewhere in this issue), nutrition education and promotion strategies are needed to inform consumers of the effect of food away from home on overall diet quality and to help create positive attitudes about making healthy food choices when eating out.

Another factor may be related to differences in information. When eating out, consumers are less likely to know about the ingredients, preparation methods, and nutritional quality of foods purchased, especially foods they may not be used to preparing themselves. Nutrition information about foods

purchased away from home is required only if specific health or nutrition claims are made about that food; and even then, complete nutrition information on the food item is not required. It has been argued that providing accurate nutrition information on foodservice items would be much more difficult and more of a constraint on businesses than is labeling standard retail packaged foods. More information on how providing nutritional information in restaurants and other foodservice establishments affects consumers' behavior and the potential costs and benefits of nutrition labeling in those settings would be useful for guiding policy decisions.

Provision of nutrition information may have played a role in influencing consumers' food choices at home (see "Food Companies Spread

Nutrition Information Through Advertising and Labels," elsewhere in this issue). Between 1977-78 and 1994-95, there have been notable changes in the nutritional composition of foods at home. In particular, fat density declined steadily from 41 percent of calories from fat in 1977-78 to 34 percent in 1994-95. In contrast, there has been less change in the nutritional composition of foods away from home.

With eating out now playing an increasingly large role in the American diet, more nutrition-intervention activities are needed to focus on improving the quality of food away from home and consumers' food choices when eating out.

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