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The Quality of Children's Diets At and Away From Home

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One of the most noticeable changes in American eating habits in recent years is the increased popularity of dining out. In fact, spending on food away from home rose from 26 percent of the total food budget in 1970 to 40 percent in 1994. With dining out expected to continue on an upward trend, it becomes important to analyze how the foods chosen when eating away from home influences the quality of American diets—particularly when it comes to children. Children are eating an increasing proportion of meals outside the home, mainly in fast food places, but also in school.

There is some concern that the increasing popularity of dining out will lessen our control over what we and our children eat and how it is prepared, and subsequently the nutritional quality of our diets. According to our analysis of 1989-91 survey data, foods away from home provided, for each 1,000 calories of food eaten, lower levels of cholesterol, fiber, calcium, iron, and sodium, and higher levels of total fat and saturated fat than do foods at home. Foods prepared at schools during 1989-91 were higher in fat, fiber, and calcium and lower in cholesterol, iron, and sodium than home foods.

The nutritional quality of food away from home may differ from food made at home for several reasons. The nutrition facts label, now required on most processed foods, is not required for foods served for immediate consumption, such as in restaurants and cafeterias, except when a restaurant or cafeteria item carries a health or nutrient claim, such as "lowfat." Consumers may not have a good understanding of the nutritional content of away-from-home foods, and they sometimes have little control over preparation techniques for those foods. Furthermore, some restaurant operators claim that although consumers may say they want healthful foods, that is not what they typically order.

This article compares the nutritional quality of foods eaten by children at and away from home by analyzing intakes of several key nutrients that have been linked to poor health and diseases—calories, total fat, saturated fat, cholesterol, fiber, calcium, iron, and sodium—by children between the ages of 2 and 17. Children in this study are classified into four age/gender groups: preschoolers (aged 2-5), primary school children (aged 6-11), male adolescents (aged 12-17), and female adolescents (aged 12-17).

Food intakes are collected through the 1989-91 Continuing Survey of Food Intakes by Individuals (CSFII). The survey is used to examine what, where, and how much Americans eat. The survey uses a daily dietary recall questionnaire to obtain the information on food consumption and is subsequently linked to a database of the nutrient content of foods maintained by the USDA's Agricultural Research Service to calculate the amount of nutrients in each food eaten. Intakes for children under 12 years of age are reported by their meal planners/preparers.

CSFII survey respondents reported where they ate and obtained their food, allowing researchers to compare the nutritive content of foods at and away from home. We define home and away-from-home foods based on where the foods are obtained, not where they are eaten. Food at home consists of foods purchased mainly at a retail store, such as a grocery store. Food away from home consists of foods obtained at various places, mainly at foodservice establishments. Sources for away-from-home foods are classi-

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fied into four groups: "restaurants," places with waiter service; "fast food," those self-service and carry-out eating places and cafeterias; "schools," including daycare centers and summer camps; and "others," which include vending machines, stores, recreation-entertainment places, community feeding programs, and someone else's home.

Older Children Ate More Meals and Snacks Outside the Home

The 1989-91 CSFII data revealed that one-quarter of meals consumed by children were prepared away from home (fig. 1). Older children ate a higher proportion of meals prepared away from home, increasing from 18 percent for preschoolers to 26 percent among primary school children and to 27-30 percent for adolescents.

Fast food places provided 42 percent of away-from-home meals to preschoolers, followed by others with 29 percent, schools with 18 percent, and restaurants with 12 percent (fig. 2). Among children aged 6 and older, schools provided the most away-from-home meals (36-43 percent), followed by fast food places (30-32 percent), others (17-22 percent), and restaurants (8-12 percent).

Children ate a higher percentage of snacks at home (83 percent) than meals at home (75 percent). Similar to overall meal patterns, older children ate more snacks away from home: 15 percent for those aged 2-11, 18 percent for male adolescents, and 22 percent for female adolescents (fig. 1). Places other than schools, fast food, and restaurants accounted for more than half of away-from-home snacks eaten by children aged 2-17 (fig. 2). For example, eating snacks at recreation and entertainment places, such as movie theaters and ball parks, is very popular with children, accounting for 30 percent of snacks eaten at other places. As children reach school age, they get more of their snacks at fast food places than at school.

Older Children Ate a Larger Share of Calories Away From Home

Children ate 77 percent of their total meals and snacks at home and obtained 72 percent of food calories from home foods (table 1). Older children ate out more often and hence obtained a higher proportion of calories from away-from-home foods. Preschoolers obtained 21 percent of their calories from away-from-home foods. Primary school children obtained 28 percent, and male adolescents obtained 29 percent of their calories away from home.

Female adolescents had the largest share of calories away from home—33 percent. Fast foods provided 11 percent of calories for female adolescents, the highest among all children in this study.

Home Foods Had Less Fat But More Cholesterol

About 72 percent of calories, 70 percent of both total fat and saturated fat intakes, and 74 percent of cholesterol came from foods prepared at home. Compared with away-from-home foods, home foods were lower in total and saturated fat but higher in cholesterol in terms of the nutrient density (the amount of a nutrient per 1,000 calories).

Higher fat density in away-from-home foods relative to home foods was fairly consistent across age and gender, ranging between 9 to 10 percent higher in away-from-home foods than home foods. Among children aged 2-17, total fat density in away-from-home foods was 40.8 grams per 1,000 calories, compared with 37.3 grams in home foods (table 2). Similarly, saturated fat density was higher for away-from-home foods (15.8 grams per 1,000 calories) than for home foods (14.1 grams) for all children. High saturated fat density in away-from-home foods relative to home foods increased with age: 4 percent higher among preschoolers, 13 percent among primary school children, 13 percent among female adolescents, and 18 percent among male adolescents.

Among children aged 2-17, cholesterol density was higher in home foods, 137 milligrams (mg) per 1,000 calories compared with 122 mg in away-from-home foods. Foods prepared at schools had a higher cholesterol density (124 mg per 1,000 calories) than fast foods (109 mg), but much lower than foods prepared in restaurants (161 mg).

Food at Schools: Lower in Sodium, Richer in Fiber, and More Calcium-Dense

Sodium estimates include sodium occurring naturally in foods, sodium added through food processing, and sodium used in food preparation. They do not include sodium added at the table.

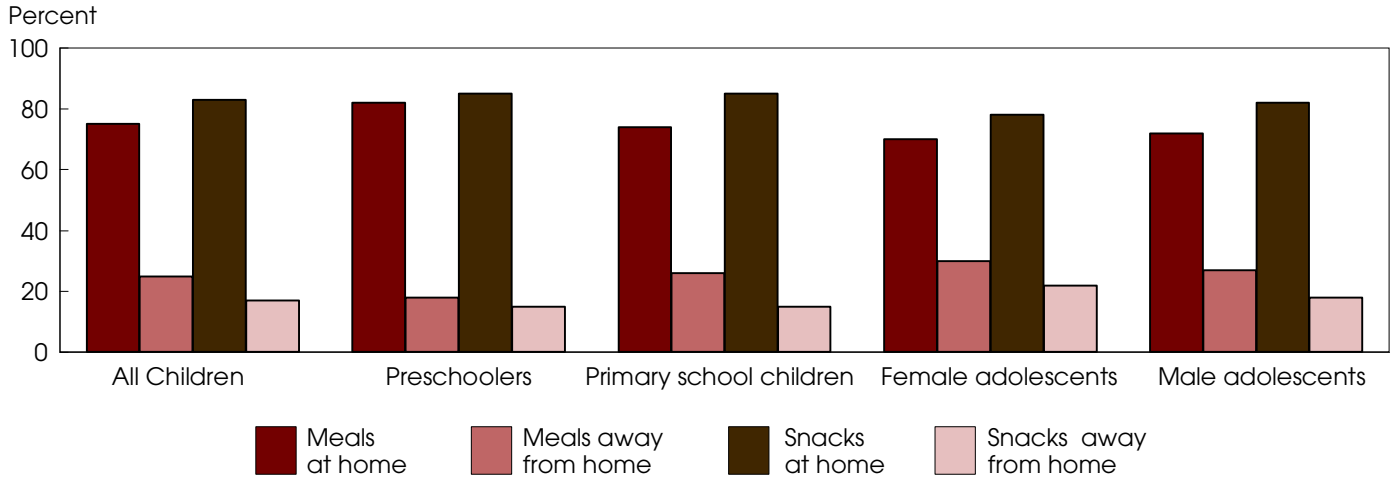
Home foods had a higher sodium density than away-from-home foods, except restaurant foods (table 2). For all children in this study, foods prepared at schools had a lower sodium density (1,566 mg per 1,000 calories) than foods prepared at fast food places (1,584 mg), home (1,687 mg), or restaurants (1,736 mg).

The major source of sodium in children's diets comes from processed foods, according to a recent study by USDA's Center for Nutrition Policy and Promotion. Therefore, strategies to reduce sodium intake must involve not only the meal preparers but also food manufacturers. The nutrition

labeling requirement could help consumers improve dietary knowledge as well as behavior, such as comparing sodium contents in choosing processed foods for consumption.

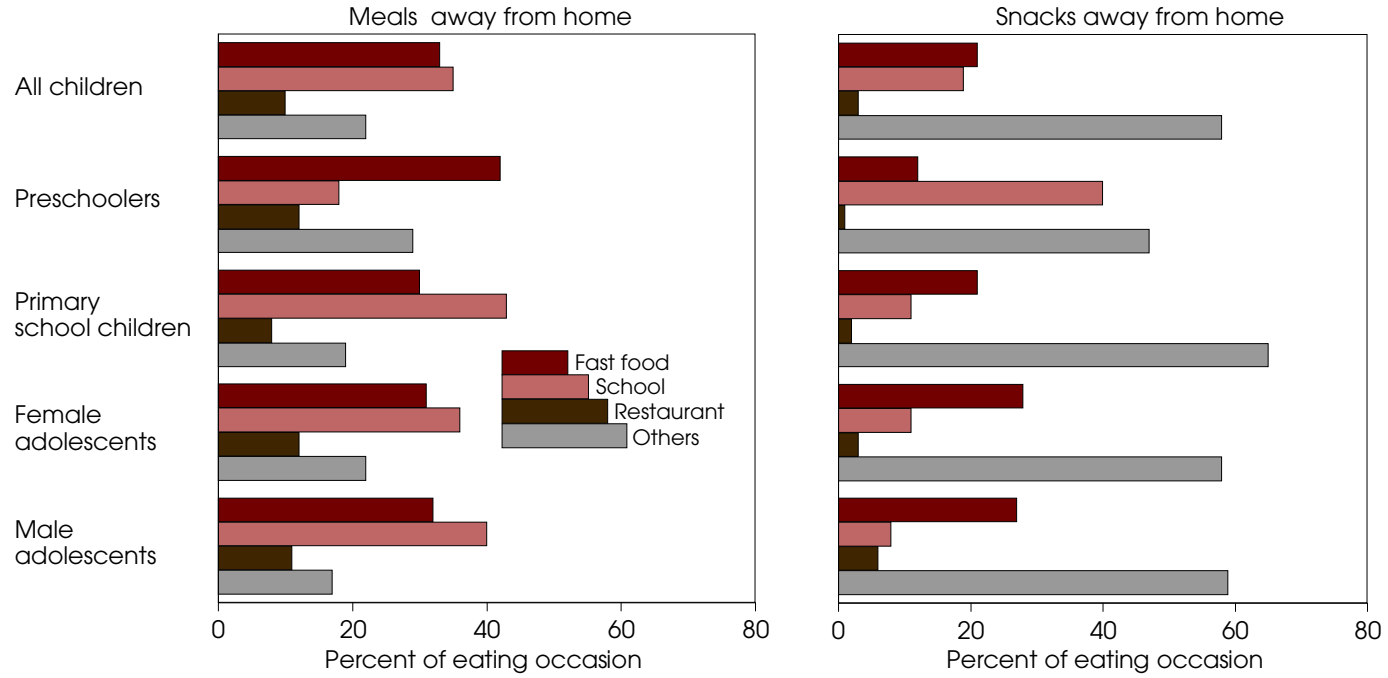
For all children, fiber density in home foods was 6.7 grams per 1,000 calories, compared with 6.4 grams in away-from-home foods. Foods prepared at schools and daycare facilities had a fiber density of 7.6 grams per 1,000 calories, the highest among all food sources (5.7 mg in fast food and 6.1 mg in restaurant food). Fiber density obtained from school meals decreased with age, declining from 7.9 mg per 1,000

Figure 1
Older Children Ate a Larger Proportion of Meals and Snacks Away From Home



Source: CSFII 1989-91, 3-day weighted average.

Figure 2
School Provided Most Meals Away From Home



Source: CSFII 1989-91, 3-day weighted average.

Table 1
Older Children Had a Larger Share of Nutrient Intakes From Meals Away From Home

Age/gender groups and food source	Calories	Total fat	Saturated fat	Cholesterol	Fiber	Calcium	Iron	Sodium
	Percent of nutrient intake							
Children aged 2 to 17:								
Home foods	72	70	70	74	73	74	79	74
Away from home[1]	28	30	30	26	27	26	21	26
Fast food	8	9	9	7	7	6	6	8
Schools	10	11	12	10	12	13	8	10
Restaurants	2	3	3	3	2	2	2	3
Others	7	7	6	6	6	5	5	6
Preschoolers:								
Home foods	79	78	78	82	80	83	83	80
Away from home[1]	21	22	22	18	20	17	17	20
Fast food	6	7	7	5	5	4	5	6
Schools	6	7	7	6	7	7	6	6
Restaurants	2	2	2	2	2	1	2	2
Others	6	6	6	5	6	5	5	6
Primary school children:								
Home foods	72	70	69	75	72	73	78	72
Away from home[1]	28	30	31	25	28	27	22	28
Fast food	8	9	8	6	7	6	6	8
Schools	13	14	15	12	15	16		
Restaurants	2	2	2	2	2	2	2	2
Others	6	6	6	5	5	4	5	6
Female adolescents:								
Home foods	67	65	64	69	69	69	74	70
Away from home[1]	33	35	36	31	31	1	26	30
Fast food	1	12	12	9	10	9	8	10
Schools	11	12	12	10	12	13	8	10
Restaurants	3	3	3	4	3	3	2	3
Others	9	9	8	8	7	6	7	8
Male adolescents:								
Home foods	71	70	68	71	73	72	78	73
Away from home[1]	29	30	32	29	27	28	22	27
Fast food	9	10	10	8	7	7	7	9
Schools	10	12	13	11	12	14	8	10
Restaurants	3	3	3	4	2	2	2	3
Others	7	6	6	6	5	5	5	6

Notes: [1]Away from home represents the aggregate of fast foods, schools, restaurants, and others. Source: 1989-91 CSFII, 3-day weighted average.

calories among primary school children to 7.2 mg among adolescents.

Home foods accounted for 72 percent of food energy and 79 percent of iron intakes among children, indicating a richer iron density in home foods than away-from-home foods.

Female adolescents were the only age/gender group whose average iron intake fell below the recommended level. The low iron intakes may be related to their eating patterns: female adolescents got the highest proportions of both meals and snacks from outside the home, ate the smallest number of meals and snacks, and had the highest tendency to skip morning meals. Compared with other meals and snacks eaten by children, morning meals had the highest iron density (see "Nutritional Quality of American Children's Diets," in the January-

Table 2
Home Foods Had Higher Cholesterol, Fiber, Calcium, Iron, and Sodium and Lower Fat Than Away-From-Home Foods

Age/gender groups and food source	Nutrient density[1]						
	Total fat	Saturated fat	Cholesterol	Fiber	Calcium	Iron	Sodium
	Grams	*Grams*	*Milligrams*	*Grams*	*Milligrams*	*Milligrams*	*Milligrams*
Children aged 2 to 17:							
Home foods	37.3	14.1	137	6.7	521	7.8	1,687
Away from home[2]	40.8	15.8	122	6.4	469	5.6	1,574
Fast food	42.0	15.8	109	5.7	376	5.5	1,584
Schools	41.6	17.0	124	7.6	623	5.7	1,566
Restaurants	41.5	15.2	161	6.1	393	5.9	1,736
Others	37.7	14.1	121	5.5	374	5.4	1,514
Preschoolers:							
Home foods	36.9	14.6	145	6.6	600	7.9	1,644
Away from home[2]	40.4	15.5	22	6.3	471	6.0	1,580
Fast food	41.5	15.6	104	5.7	356	5.5	1,536
Schools	39.5	16.4	127	7.3	653	6.7	1,567
Restaurants	42.3	14.1	158	5.8	349	5.6	1,890
Others	39.4	15.1	123	6.0	444	5.8	1,533
Primary school children:							
Home foods	37.2	14.1	37	6.7	522	7.8	1,663
Away from home[2]	40.6	15.9	117	6.7	493	5.6	1,587
Fast food	42.8	16.0	110	5.8	376	5.7	1,659
Schools	40.9	16.9	120	7.9	644	5.6	1,573
Restaurants	42.9	15.6	135	6.4	383	5.9	1,669
Others	36.2	14.0	115	5.3	366	5.3	1,496
Female adolescents:							
Home foods	37.4	13.8	135	6.8	469	7.8	1,787
Away from home[2]	41.0	15.5	122	6.1	430	5.4	1,532
Fast food	41.3	15.5	104	5.8	374	5.2	1,476
Schools	42.4	16.6	126	7.2	563	5.5	1,559
Restaurants	40.3	15.2	179	5.6	410	5.5	1,591
Others	39.0	14.3	123	5.6	344	5.4	1,550
Male adolescents:							
Home foods	37.9	13.7	129	6.7	471	7.9	1,707
Away from home[2]	41.4	16.1	130	6.2	460	5.5	1,584
Fast food	41.7	15.9	116	5.5	373	5.5	1,607
Schools	43.8	18.1	130	7.2	609	5.3	1,555
Restaurants	40.0	15.5	185	6.1	427	6.5	1,856
Others	37.5	13.4	128	5.4	352	5.4	1,488

Notes: [1]The amount of a nutrient per 1,000 calories. [2]Away from home represents the aggregate of fast foods, schools, restaurants, and others. Source: 1989-91 CSFII, 3-day weighted averages.

April 1996 issue of *FoodReview*). Some children took multivitamins with minerals or other supplements containing iron: 10 percent among primary school children, 8 percent among female adolescents, and 9 percent among male adolescents.

Home foods were richer in calcium (521 mg per 1,000 calories) than were away-from-home foods as a whole (469 mg). However, foods

Eating Better When Eating Out

The results reported in this article are consistent with reports from the foodservice industry. Children are an important market, according to the National Restaurant Association. In 1991, children under the age of 18 accounted for 19 percent of restaurant orders. Children are especially important customers for lower cost restaurants, such as fast food and family-oriented places. In addition, children may be key decisionmakers when a family is choosing where to eat. The National Restaurant Association reports that about half of adults with children rate their children as being influential or very influential in the decision whether to eat out and where to eat. It is not surprising that many fast food places make it a point to provide child-oriented amenities—ranging from high chairs and booster seats to special children's meals with prizes even to small playgrounds on the facility.

But what about food choices? Fast food restaurants have been criticized for typically offering foods high in calories, fat, and sodium, and not offering fruits and vegetables. However, many have expanded their food selection, making it easier for parents to incorporate the occasional fast food meal into a healthful diet for their children. A 1990 National Restaurant Association survey found that among the larger fast food and family restaurant chains (those with 350 or more units), 74 percent offered lowfat milk, 78 percent offered entree salads and/or salad bars and poultry without the skin, and 48 percent offered high fiber/whole grain breads or muffins and fresh fruit. Fruit juice, dry cereal, and lowfat versions of some popular combination foods, such as tacos and burritos, are also offered by some fast food chains.

prepared at schools had a much higher calcium density than home foods. For example, school meals prepared for primary school children had a calcium density 23 percent higher than the level in home foods and 71 percent higher than fast foods. One reason may be because fluid milk is a required element in school meals.

Governmental and Parental Efforts Needed To Improve Children's Diets

The share of the food budget spent away from home has been rising in recent decades and is expected to continue upward in the future. The CSFII data reveal that away-from-home foods were lower in nutritional quality than home foods with respect to total fat, saturated fat, fiber, calcium, and iron. The data also show too much fat and sodium and insufficient amounts of fiber, calcium, and iron in many children's diets. Clearly, there is a need to improve children's diets.

A 1993 USDA-sponsored assessment of the nutritional quality of school meals indicated that school lunches, on average for a school day, provided one-third or more of the Recommended Daily Allowances (RDA's) for key nutrients, including vitamins A, C, and B6 and calcium, iron, and zinc. However, school lunches fell short of one-third of the RDA in a few cases, such as iron for females aged 11-18 and zinc for males aged 11-18. Furthermore, school lunches exceeded the dietary recommendations for total fat and saturated fat. The CSFII 1989-91 data also point out that foods prepared at school were rich in fiber and calcium, but had too much total and saturated fat.

To remedy the high fat and other nutritional problems in school meals and in children's diets, USDA put forth the School Meals Initiative for Healthy Children. The initiative aims to improve the nutritional quality as well as the popularity of school meals and to encourage children to improve their overall diets.

Fast food places contributed 8 percent of food energy in children's diets during 1989-91. Fast foods were relatively high in total fat, saturated fat, and sodium, and low in fiber and calcium. With fast food places so popular with children, parents have an important responsibility to guide their children in making healthful food choices from among the various menu items. As children get older, they tend to frequent fast food places with their peers rather than their parents. Children need to learn early on to select nutritious foods and acquire more nutritional knowledge, a major goal of USDA's Team Nutrition efforts.

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Eating Better When Eating Out, USDA, is available for $1.50 from the Government Printing Office. Call (202) 783-3238 to order stock/item # 001-000-04530-0.

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