

## Weekday and Weekend

Nutritional quality of children's diets may vary according to the day of the week. As reported in table 3, school meals were relatively rich in fiber and calcium and relatively low in sodium. Therefore, the absence of school meals during weekends makes it likely that the nutritional quality of foods eaten by children during weekdays is better than foods eaten during weekends, at least for some dietary components. CSFII surveys were conducted throughout the year.

Slightly more than 70 percent of children's intake days in CSFII 1989-91 fell on weekdays (app. table 2). Children age 2-11 had a higher proportion of their intake days fall on weekdays than did older children. For all children, foods eaten during weekdays achieved 92, 100, and 117 percent of the daily recommended intakes for fiber, calcium, and iron as compared with 79, 90, and 106 percent during weekends. Daily cholesterol intake during weekdays averaged 75 percent of the recommended level, compared with 87 percent during weekends. Among all children, especially female adolescents, away-from-home shares of nutrient intakes were higher for all nutrients, except iron, during weekdays than weekends.

## Household Characteristics

CSFII respondents also reported an array of social, economic, and demographic characteristics of their households. Diet quality, measured by average nutrient intake as a percentage of the recommended intake, and home/away-from-home share of nutrient intakes are tabulated according to household characteristics. Household characteristics analyzed include: household income (table 4), Food Stamp Program participation (table 5), household type (table 6), household size (table 7), meal planner's education (table 8), race and Hispanic origin (table 9), region (table 10), and urbanization of residence (table 11). The distributions of children with respect to their household characteristics are depicted in figure 2. The categorization of children by age, gender, and household characteristics inevitably leaves some classifications with small sample sizes. In this report, average intakes and away-from-home shares are not reported for those classifications representing 1 percent or less of all children included in this study. Readers need to exercise caution with other reported figures, especially when those represent a small percentage of all children.

Other factors are not held constant when we examine any one characteristic. For example, the relationship between Food Stamp Program participation and nutrient intakes that we report does not hold income constant. Thus, since households on food stamps are by definition low-income, the comparison of participants and nonparticipants includes effects of differences in income as well as other factors.

Household income expressed as a percentage of the poverty level is grouped into three ranges: below 131 percent of the poverty level (low income), between 131 and 300 percent (middle income), and greater than 300 percent (high income) (130 percent of the poverty level is the cutoff for Food Stamp Program eligibility). Household income appears to have rather minor influences on nutrient intakes expressed as a percentage of the recommended level. For all children, food energy, dietary fiber, calcium, and iron intakes as a percentage of their recommended levels increased somewhat with income, while total fat, saturated fat, and cholesterol intakes decreased. Away-from-home share of nutrient intakes was highest among children from middle-income households.

Thirteen percent of children age 2-17 in the CSFII surveys came from households receiving Food Stamps (table 5). When measured against the recommended levels, intakes of calories, total fat, saturated fat, cholesterol, dietary fiber, and sodium were higher while intakes of calcium and iron were lower among children living in Food Stamp participating households than other children. They also had a smaller percentage of their nutrient intakes away from home.

Nearly 80 percent of surveyed children lived in dual-headed households, 18 percent of children lived in households headed by a female only, and only 2 percent of children lived in households headed by a male only (table 6). Compared with other children, children living in male-headed households had higher intakes, in terms of a percentage of the recommended level, of calories, total fat, saturated fat, cholesterol, iron, and sodium. They also had the smallest share of intakes away from home. With the exception of primary school children, children living in dual-headed households had the largest share of nutrient intakes away from home.

Children living in households with two or three persons had a higher share of nutrient intakes away from home than children living in households with four or more people (table 7). Primary school

**Table 4—Household income: nutrient intakes as percent of recommended levels and from away from home**

Age/gender/energy/nutrient	Intake as percent of recommended level			Percent of total from away from home		
	Income as percentage of poverty level			Income as a percentage of poverty level		
	<131%	131-300%	>300%	<131%	131-300%	>300%
	<i>Percent</i>					
Children age 2-17						
% of all children	25	36	39			
Food energy	86	89	89	25	30	27
Total fat	115	114	113	27	33	29
Saturated fat	132	131	129	27	33	29
Cholesterol	80	78	78	20	29	26
Dietary fiber	88	88	89	25	29	27
Calcium	91	98	99	25	29	24
Iron	107	116	117	21	23	21
Sodium	119	125	123	23	29	26
Preschoolers						
% of all children	8	9	10			
Food energy	89	90	95	16	21	24
Total fat	114	112	112	17	23	26
Saturated fat	135	133	137	16	23	24
Cholesterol	72	63	62	13	20	21
Dietary fiber	103	109	111	15	19	24
Calcium	93	102	104	14	18	18
Iron	101	104	107	13	15	20
Sodium	95	95	95	15	20	24
Primary school children						
% of all children	10	16	14			
Food energy	87	92	88	27	31	27
Total fat	115	115	113	28	34	28
Saturated fat	133	132	130	29	35	29
Cholesterol	81	78	78	22	31	22
Dietary fiber	90	91	90	28	31	27
Calcium	106	110	109	28	32	23
Iron	118	125	124	22	25	20
Sodium	122	127	119	25	31	26
Female adolescents						
% of all children	4	6	7			
Food energy	81	80	85	32	35	34
Total fat	116	114	113	34	37	35
Saturated fat	129	126	126	34	39	36
Cholesterol	82	77	77	26	33	34
Dietary fiber	61	61	61	30	33	32
Calcium	63	68	71	32	34	30
Iron	79	89	82	27	24	27
Sodium	129	126	128	30	31	30
Male adolescents						
% of all children	3	6	7			
Food energy	78	87	88	28	33	26
Total fat	114	118	113	30	35	28
Saturated fat	126	133	127	32	36	30
Cholesterol	97	103	102	24	33	28
Dietary fiber	78	76	81	27	31	25
Calcium	76	92	100	31	32	25
Iron	124	137	151	22	25	20
Sodium	128	153	166	25	30	26

Compiled by USDA/ERS from 1989-91 CSFII, 3-day weighted averages.

**Table 5—Food Stamp Program participation: nutrient intakes as percent of recommended levels and from away from home**

Age/gender/energy/nutrient	Intake as percent of recommended level		Percent of total from away from home	
	Food stamp		Food stamp	
	Receiving	Not receiving	Receiving	Not receiving
	<i>Percent</i>			
Children age 2-17				
% of all children	13	87		
Food energy	89	88	24	28
Total fat	115	114	25	30
Saturated fat	132	130	26	31
Cholesterol	81	78	20	27
Dietary fiber	94	87	24	27
Calcium	93	97	24	26
Iron	114	114	20	22
Sodium	124	123	22	27
Preschoolers				
% of all children	4	22		
Food energy	93	92	15	22
Total fat	114	112	16	23
Saturated fat	134	132	17	23
Cholesterol	74	64	13	19
Dietary fiber	107	108	15	21
Calcium	93	101	14	18
Iron	106	104	14	17
Sodium	99	94	14	21
Primary school children				
% of all children	5	35		
Food energy	94	89	28	29
Total fat	116	114	28	31
Saturated fat	133	131	30	32
Cholesterol	84	78	23	26
Dietary fiber	102	88	29	29
Calcium	108	109	28	27
Iron	131	121	22	22
Sodium	135	121	26	28
Female adolescents				
% of all children	2	15		
Food energy	81	82	31	34
Total fat	118	114	32	36
Saturated fat	132	126	32	37
Cholesterol	78	78	25	32
Dietary fiber	61	61	30	32
Calcium	63	69	33	32
Iron	77	84	28	26
Sodium	129	127	29	30
Male adolescents				
% of all children	2	15		
Food energy	77	87	23	29
Total fat	112	115	25	31
Saturated fat	124	129	27	33
Cholesterol	94	102	21	30
Dietary fiber	70	80	22	28
Calcium	71	94	26	29
Iron	116	143	18	22
Sodium	151	165	21	28

Compiled by USDA/ERS from 1989-91 CSFII, 3-day weighted averages.

**Table 6—Household type: nutrient intakes as percent of recommended levels and from away from home**

Age/gender/energy/nutrient	Intake as percent of recommended level			Percent of total from away from home		
	Household type			Household type		
	Dual-headed	Single-headed		Dual-headed	Single-headed	
		Female	Male		Female	Male
<i>Percent</i>						
Children age 2-17						
% of all children	79	18	2			
Food energy	88	87	92	28	29	21
Total fat	114	115	118	30	31	21
Saturated fat	130	130	138	30	32	20
Cholesterol	77	83	89	26	26	14
Dietary fiber	88	87	89	27	28	21
Calcium	99	89	95	26	28	19
Iron	113	116	140	22	23	15
Sodium	122	125	129	27	27	21
Preschoolers						
% of all children	22	4	1/			1/
Food energy	92	80		21	19	
Total fat	111	114		23	20	
Saturated fat	132	133		22	20	
Cholesterol	63	70		19	15	
Dietary fiber	110	102		20	20	
Calcium	102	88		17	16	
Iron	105	100		17	17	
Sodium	94	97		21	18	
Primary school children						
% of all children	32	7	1/			1/
Food energy	89	89		28	33	
Total fat	114	115		30	34	
Saturated fat	132	130		31	36	
Cholesterol	78	81		25	30	
Dietary fiber	90	91		28	35	
Calcium	111	99		27	33	
Iron	123	123		2227		
Sodium	123	122		27	31	
Female adolescents						
% of all children	13	4	1/			1/
Food energy	81	84		34	32	
Total fat	113	116		37	34	
Saturated fat	126	127		37	35	
Cholesterol	77	83		33	28	
Dietary fiber	60	66		33	28	
Calcium	68	68		32	31	
Iron	81	88		27	24	
Sodium	125	134		31	28	
Male adolescents						
% of all children	12	3	1/			1/
Food energy	86	84		30	27	
Total fat	115	114		31	30	
Saturated fat	128	128		33	32	
Cholesterol	101	104		30	29	
Dietary fiber	77	83		28	23	
Calcium	92	90		29	27	
Iron	135	152		23	19	
Sodium	165	159		28	26	

1/ The sample size is 1 percent or less of all children and the figures are not reported. Caution also needs to be exercised with those figures representing small percentages of all children.

Compiled by USDA/ERS from 1989-91 CSFII, 3-day weighted averages.

**Table 7—Household size: nutrient intakes as percent of recommended levels and from away from home**

Age/gender/ energy/nutrient	Intake as percent of recommended level					Percent of total from away from home				
	Household size					Household size				
	2	3	4	5	> 5	2	3	4	5	> 5
<i>Percent</i>										
Children age 2-17										
% of all children	5	19	34	24	18					
Food energy	88	86	88	91	87	35	30	27	26	28
Total fat	116	113	112	116	116	37	31	30	27	30
Saturated fat	133	129	129	131	134	36	32	30	28	30
Cholesterol	84	77	74	84	80	32	26	25	23	27
Dietary fiber	85	84	89	90	89	36	29	27	24	26
Calcium	83	90	98	102	98	30	28	25	24	27
Iron	118	113	115	111	116	28	25	21	20	19
Sodium	125	121	118	128	126	34	29	26	25	25
Preschoolers										
% of all children	1/	6	10	6	4	1/				
Food energy		92	92	90	90		29	20	16	17
Total fat		112	109	114	117		31	22	17	18
Saturated fat		131	128	133	143		31	22	17	17
Cholesterol		61	64	68	68		25	17	12	17
Dietary fiber		108	112	104	106		31	20	14	13
Calcium		91	102	102	109		26	17	13	13
Iron		101	110	98	107		28	15	12	11
Sodium		91	96	95	97		29	19	16	15
Primary school children										
% of all children	2	6	14	11	8					
Food energy	85	89	90	90	89	46	26	30	28	27
Total fat	116	115	113	115	116	47	27	32	29	29
Saturated fat	130	134	131	130	133	45	28	33	30	30
Cholesterol	73	79	75	83	79	43	23	27	25	24
Dietary fiber	91	84	87	92	98	50	25	31	26	27
Calcium	92	107	111	111	108	39	25	29	26	27
Iron	114	123	120	119	132	41	20	25	22	18
Sodium	115	119	119	124	132	44	24	30	27	25
Female adolescents										
% of all children	1/	3	5	4	3	1/				
Food energy		78	76	91	81		36	33	31	35
Total fat		111	113	117	114		38	36	32	38
Saturated fat		123	124	130	129		40	36	33	39
Cholesterol		77	64	85	86		32	33	27	38
Dietary fiber		54	58	72	60		34	33	28	32
Calcium		59	62	80	73		31	30	32	35
Iron		74	75	93	87		31	27	22	24
Sodium		121	117	145	128		33	30	27	31
Male adolescents										
% of all children	1/	5	5	3	3	1/				
Food energy		81	88	94	79		31	27	27	33
Total fat		113	116	119	114		32	29	28	36
Saturated fat		127	127	133	128		34	31	30	38
Cholesterol		92	102	118	98		28	28	28	34
Dietary fiber		77	81	84	70		28	25	26	31
Calcium		90	91	106	80		32	25	26	37
Iron		140	152	136	117		24	19	21	27
Sodium		159	164	179	154		30	25	26	30

1/ The sample size is 1 percent or less of all children and the figures are not reported. Caution also needs to be exercised with those figures representing small percentages of all children.

Compiled by USDA/ERS from 1989-91 CSFII, 3-day weighted averages.

**Table 8—Education of children’s meal planners: nutrient intakes as percent of recommended levels and from away from home**

Age/gender/ energy/nutrient	Intake as percent of recommended level				Percent of total from away from home			
	Education of children’s meal planners				Education of children’s meal planners			
	Less than high school	High school	Some college	College or more	Less than high school	High school	Some college	College or more
	<i>Percent</i>							
Children age 2-17								
% of all children	18	34	25	22				
Food energy	86	88	89	89	25	28	28	28
Total fat	114	114	116	111	27	30	31	30
Saturated fat	132	131	131	127	27	31	31	31
Cholesterol	84	78	78	75	21	26	28	26
Dietary fiber	88	87	89	89	25	27	27	27
Calcium	89	96	103	98	24	26	27	25
Iron	116	111	117	115	19	23	21	21
Sodium	124	121	123	124	23	27	28	26
Preschoolers								
% of all children	5	9	7	6				
Food energy	89	93	92	92	16	22	18	24
Total fat	114	110	116	110	16	24	19	27
Saturated fat	135	130	137	129	16	24	18	26
Cholesterol	72	64	67	58	13	20	15	22
Dietary fiber	106	111	102	112	15	20	17	26
Calcium	93	96	107	105	13	19	15	18
Iron	111	102	104	105	11	18	14	20
Sodium	98	93	95	94	13	21	18	25
Primary school children								
% of all children	7	14	11	8				
Food energy	93	89	89	89	27	28	29	31
Total fat	115	116	116	109	28	29	32	33
Saturated fat	134	133	131	127	28	30	33	35
Cholesterol	88	81	75	70	22	24	29	27
Dietary fiber	100	88	92	85	28	28	28	31
Calcium	108	109	113	104	27	27	29	28
Iron	137	122	122	113	20	22	23	24
Sodium	133	124	121	114	26	26	30	30
Female adolescents								
% of all children	4	5	4	3				
Food energy	77	82	83	86	28	37	37	31
Total fat	115	112	116	113	30	39	39	33
Saturated fat	129	126	127	125	30	39	41	34
Cholesterol	82	72	79	80	24	35	34	32
Dietary fiber	55	58	65	71	28	36	34	26
Calcium	61	69	72	73	26	35	34	30
Iron	79	83	87	89	21	30	27	23
Sodium	124	125	126	137	24	35	33	27
Male adolescents								
% of all children	2	6	3	5				
Food energy	80	83	91	87	30	29	30	25
Total fat	111	117	115	115	32	31	33	26
Saturated fat	123	134	127	127	33	32	35	29
Cholesterol	98	99	112	97	26	29	35	23
Dietary fiber	79	74	83	81	28	28	28	23
Calcium	75	90	101	95	33	27	31	25
Iron	128	126	161	147	24	24	21	19
Sodium	155	156	179	166	28	28	29	23

Compiled by USDA/ERS from 1989-91 CSFII, 3-day weighted averages.

**Table 9—Race and Hispanic origin: nutrient intakes as percent of recommended levels and from away from home**

Age/gender/energy/nutrient	Intake as percent of recommended level				Percent of total from away from home			
	Non-Hispanic			Hispanic	Non-Hispanic			Hispanic
	White	Black	Others		White	Black	Others	
	<i>Percent</i>							
Children age 2-17								
% of all children	72	16	2	10	7			
Food energy	89	87	90	84	28	28	24	29
Total fat	114	118	107	111	30	29	26	28
Saturated fat	130	133	121	131	31	30	26	21
Cholesterol	77	81	87	85	27	24	19	26
Dietary fiber	89	83	108	83	27	29	23	23
Calcium	101	83	94	91	26	29	22	22
Iron	117	106	127	103	21	23	19	26
Sodium	124	127	126	111	27	26	23	2
Preschoolers								
% of all children	20	3	1/	3			1/	3
Food energy	94	89		82	22	19		14
Total fat	112	120		111	24	19		13
Saturated fat	131	141		137	24	18		1
Cholesterol	63	67		73	21	15		80
Dietary fiber	111	92		98	21	21		1
Calcium	104	80		95	18	16		9
Iron	108	92		93	18	16		91
Sodium	96	95		83	22	18		1
Primary school children								
% of all children	28	6	1/	5			1/	9
Food energy	90	92		85	28	29		21
Total fat	114	120		108	30	31		30
Saturated fat	131	138		129	31	31		31
Cholesterol	76	84		82	26	26		29
Dietary fiber	90	94		83	28	31		25
Calcium	112	102		100	27	30		24
Iron	124	120		112	21	24		29
Sodium	122	134		109	27	28		2
Female adolescents								
% of all children	11	4	1/	2			1/	2
Food energy	81	82		88	34	34		33
Total fat	114	113		118	37	36		33
Saturated fat	129	119		135	37	37		38
Cholesterol	75	77		103	34	28		23
Dietary fiber	59	64		66	31	35		32
Calcium	72	60		70	31	37		31
Iron	84	83		83	26	25		30
Sodium	124	133		136	31	29		3
Male adolescents								
% of all children	13	2	1/	1/			1/	1/
Food energy	87	77			29	27		
Total fat	115	119			31	27		
Saturated fat	129	131			33	29		
Cholesterol	101	105			31	20		
Dietary fiber	80	69			28	25		
Calcium	96	74			29	28		
Iron	142	125			23	20		
Sodium	168	145			28	23		

1/ The sample size is 1 percent or less of all children and the figures are not reported.  
 Caution also needs to be exercised with those figures representing small percentages of all children.  
 Compiled by USDA/ERS from 1989-91 CSFII, 3-day weighted averages.

**Table 10—Region: nutrient intakes as percent of recommended levels and from away from home**

Energy/nutrient	Intake as percent of recommended level				Percent of total from away from home			
	Northeast	Midwest	South	West	Northeast	Midwest	South	West
	<i>Percent</i>							
Children age 2-17								
% of all children	19	25	36	21				
Food energy	92	88	89	85	26	24	33	25
Total fat	113	115	115	112	28	25	35	27
Saturated fat	132	132	130	128	28	26	36	27
Cholesterol	77	73	81	82	24	22	31	21
Dietary fiber	88	90	85	92	25	23	34	22
Calcium	100	102	91	98	23	22	33	21
Iron	119	118	110	112	21	17	27	18
Sodium	127	123	126	114	25	22	32	24
Preschoolers								
% of all children	5	6	9	6				
Food energy	95	93	90	89	18	19	27	16
Total fat	117	111	113	110	19	20	29	17
Saturated fat	143	131	129	130	18	19	29	17
Cholesterol	69	60	63	70	17	18	25	10
Dietary fiber	103	110	107	113	19	16	28	13
Calcium	108	105	91	100	13	16	24	12
Iron	103	113	99	104	16	12	24	11
Sodium	96	96	96	91	18	17	27	15
Primary school children								
% of all children	7	11	14	9				
Food energy	92	91	91	84	29	24	35	24
Total fat	111	116	116	112	31	25	37	26
Saturated fat	130	133	132	130	32	26	38	26
Cholesterol	72	77	83	80	28	22	31	20
Dietary fiber	90	93	87	92	29	25	36	22
Calcium	109	114	104	110	29	22	35	21
Iron	124	127	122	117	24	18	28	18
Sodium	126	128	123	114	30	22	34	23
Female adolescents								
% of all children	3	3	8	3				
Food energy	83	78	84	78	31	28	36	35
Total fat	113	116	114	114	33	29	39	37
Saturated fat	123	132	125	127	34	30	39	38
Cholesterol	74	65	82	86	29	28	36	26
Dietary fiber	68	60	59	61	30	25	35	30
Calcium	71	72	68	64	28	25	36	32
Iron	88	85	80	87	24	19	31	24
Sodium	133	122	131	118	27	25	33	31
Male adolescents								
% of all children	4	4	5	3				
Food energy	87	82	87	87	26	26	32	31
Total fat	111	116	120	111	27	29	33	32
Saturated fat	125	132	132	122	29	30	36	34
Cholesterol	102	87	108	109	25	26	31	34
Dietary fiber	80	73	80	84	23	25	32	27
Calcium	95	90	92	92	24	24	36	28
Iron	156	128	139	140	19	19	25	24
Sodium	172	149	174	155	24	25	30	29

Compiled by USDA/ERS from 1989-91 CSFII, 3-day weighted averages.

**Table 11—Urbanization: nutrient intakes as percent of recommended levels and from away from home**

Age/gender/energy/nutrient	Intake as percent of recommended level			Percent of total from away from home		
	Central cities	Suburban	Nonmetropolitan	Central cities	Suburban	Nonmetropolitan
	<i>Percent</i>					
Children age 2-17						
% of all children	29	47	24			
Food energy	87	88	91	25	28	31
Total fat	115	113	115	27	30	34
Saturated fat	130	131	130	28	30	34
Cholesterol	76	78	84	22	25	30
Dietary fiber	86	88	92	24	28	29
Calcium	92	101	95	24	24	31
Iron	114	114	114	19	22	24
Sodium	119	122	130	24	27	29
Preschoolers						
% of all children	8	13	6			
Food energy	89	93	94	19	20	24
Total fat	115	111	113	20	21	27
Saturated fat	133	132	133	20	20	26
Cholesterol	68	63	67	15	17	24
Dietary fiber	102	104	115	17	21	21
Calcium	91	108	94	16	15	23
Iron	102	104	108	14	18	16
Sodium	91	97	95	18	20	22
Primary school children						
% of all children	12	18	10			
Food energy	88	88	94	28	29	29
Total fat	115	114	115	30	31	31
Saturated fat	131	132	131	30	32	31
Cholesterol	75	77	86	25	26	27
Dietary fiber	88	88	97	29	29	28
Calcium	104	112	109	27	27	29
Iron	127	120	123	22	23	22
Sodium	120	119	134	28	28	27
Female adolescents						
% of all children	5	8	4			
Food energy	78	82	86	31	31	40
Total fat	113	115	116	33	33	43
Saturated fat	125	127	129	34	34	43
Cholesterol	72	79	84	29	30	37
Dietary fiber	59	63	60	30	30	38
Calcium	65	68	72	33	28	36
Iron	77	85	89	25	24	31
Sodium	125	126	134	28	29	36
Male adolescents						
% of all children	4	8	4			
Food energy	87	86	85	20	31	34
Total fat	117	114	115	21	32	37
Saturated fat	130	128	128	24	34	38
Cholesterol	101	100	104	22	28	37
Dietary fiber	81	77	81	18	30	31
Calcium	90	96	87	21	28	37
Iron	144	145	128	15	23	26
Sodium	166	163	161	19	29	31

Compiled by USDA/ERS from 1989-91 CSFII, 3-day weighted averages.

children living in households with only two persons had the largest share of nutrients away from home among all groups of children, but they accounted for only 2 percent of all children included in this study.

Education of children's meal planners is grouped into four categories: less than high school (18 percent), high school (34 percent), some college (25 percent), and college or more (22 percent). The percentage of nutrients from away-from-home sources was lowest among children, especially preschoolers and female adolescents, whose meal planners had not completed high school (table 8).

Preschoolers and primary school children whose meal planners had completed college had the highest percentage of nutrient intakes away from home. College-educated individuals tend to have higher income and are more likely to be employed than less educated people, both strong determinants of away-from-home dining. However, adolescents whose meal planners had completed college had a relatively small share of their nutrient intakes away from home. Compared with other children, children whose meal planners had completed college had lower levels of total fat, saturated fat, and cholesterol intakes when measured against the recommended intakes.

Race and Hispanic origin are classified into four groups: Hispanic (10 percent), non-Hispanic White (72 percent), non-Hispanic Black (16 percent), and others (2 percent). Children of "other" race/origin had a smaller share of nutrient intakes away from home (table 9). Away-from-home share of nutrient intakes increased with age among non-Hispanic White and non-Hispanic Black children. Non-Hispanic White children had a higher calcium intake than children of "other" race/origin, who generally had relatively high intakes of fiber, iron, and cholesterol, and relatively low fat intakes.

Children living in the South had the largest share of their nutrient intakes away from home (table 10). Adolescents living in the West also had a high percentage of nutrient intakes away from home. Compared with other adolescents, adolescents living in the Midwest tended to have a lower level of cholesterol and those living in the West tended to have a higher level of cholesterol. Male adolescents living in the Northeast and South had relatively high sodium intakes compared with other children.

Almost half (47 percent) of all children in the analysis lived in suburban areas, 29 percent lived in central cities, and 24 percent lived in nonmetropolitan areas (table 11). Children living in nonmetropolitan areas had a higher percentage of caloric and nutrient intakes away from home than did other children. For example, male adolescents living in nonmetropolitan areas had 34 percent of total calories and 37 percent of fat intake away from home, compared with 20 percent of total calories and 21 percent of fat intake away from home among male adolescents living in central cities and suburban areas. These results are caused partly by the fact that the ratio of surveyed days being on weekdays to surveyed days being on weekends is higher for adolescents living in nonmetropolitan areas than for those living in central cities and suburban areas. During weekdays, children, especially female adolescents, had a higher percentage of caloric and nutrient intakes away from home than at home (app. table 2).

## **Diet and Health Knowledge of Meal Planners**

In the CSFII surveys, meal planners were contacted with a followup Diet and Health Knowledge Survey (DHKS) in which they responded to an array of questions related to diet, nutrition, and health. Children's nutrient intakes, expressed as a percentage of the recommended level, are tabulated according to their meal planners' DHKS responses, including the frequency in comparing nutrient contents of different brands of the same food, awareness of health problems related to nutrient intakes, and perceived importance of dietary advice.

Household meal planners were asked how often (always, sometimes, rarely, or never) they compare the nutrients—such as protein, fat, or vitamins—for different brands of the same food. Forty-four percent of children came from households whose meal planners sometimes compared nutrient contents, 24 percent of children's meal planners rarely compared, 19 percent never compared, and 13 percent always compared (app. table 3). On average, children whose meal planners never compared nutrient contents generally had relatively high intakes of total fat, saturated fat, cholesterol, and sodium and relatively low intakes of dietary fiber, calcium, and iron. These results suggest that nutrition labeling may have the desired influence on at-home food selections for people who read them.

Household meal planners were asked whether they had heard about any health problems related to intakes of fat, saturated fat, fiber, sodium, calcium, cholesterol, iron, and overweight. On average, 79, 64, and 88 percent of children came from households in which meal planners had heard about health problems related to fat, saturated fat, and cholesterol (app. table 4). Children's intakes of total fat, saturated fat, and cholesterol, expressed as a percentage of the recommended level, did not appear to correlate to their meal planners' awareness of health problems related to fat, saturated fat, or cholesterol intakes.

Slightly over half of the children's meal planners had heard about health problems related to fiber and iron intakes. School-age children whose meal planners had heard about health problems related to fiber and iron intakes had slightly higher intakes of fiber and iron than other children. Almost two-thirds of children came from households in which meal planners had heard about health problems related to calcium intake and these children, except female adolescents, had a higher calcium intake than other children. An overwhelming majority of meal planners had heard about health problems related to sodium intake and overweight. Adolescents whose meal planners had heard about health problems related to sodium intake actually had a higher sodium intake than other adolescents.

Meal planners' perceived importance of dietary advice was classified into three categories: not important (numerical responses of 1 or 2), somewhat important (3 or 4), and very important (5 or 6). Over half of children came from households in which meal planners considered it very important to avoid too much salt (or to use salt in moderation) (60 percent), eat foods with adequate fiber (or choose a diet with adequate fiber) (62 percent), avoid too much fat (or choose a diet low in fat) (60 percent), avoid too much saturated fat (or choose a diet low in saturated fat) (65 percent), and avoid too much cholesterol (or choose a diet low in cholesterol) (67 percent) (app. table 5).

Among children age 2-11, sodium intakes, as a percentage of the recommended level, increased with their meal planners' perceived importance in avoiding too much salt. In fact, male adolescents whose meal planners considered it unimportant to avoid too much salt had sodium intakes only 140 percent of the recommended level, compared with 179 and 163 percent for male adolescents whose meal planners considered it somewhat and very important. It is plausible that meal planners for children with high

sodium intakes recognized the importance of avoiding too much salt but were unable to reduce their children's intakes.

Generally, children's fiber intake appears to correspond to their meal planners' perceived importance in eating foods rich in fiber. However, about 7 percent of meal planners for female adolescents considered it unimportant to eat foods with adequate fiber and these children's fiber intake was 71 percent of the recommended level, compared with 59-60 percent by other female adolescents.

Children's intake of total fat and saturated fat, as a percentage of the recommended level, did not appear to correlate with their meal planners' perceived importance in avoiding too much fat and saturated fat. As with sodium, children's cholesterol intakes increased with their meal planners' perceived importance in avoiding too much cholesterol.

Improving children's diets is predicated on two basic challenges: increasing intakes of some nutrients and food components like fiber, calcium, and iron; and limiting others like fat, saturated fat, cholesterol, and sodium. Results indicate that general knowledge, such as awareness of diet-health relationships and motivation (the "importance" variables), is useful for increasing intakes of "underconsumed" food components but ineffective in limiting intake of "overconsumed" components. Label reading, on the other hand, does seem to be associated with decreased intake of the "overconsumed" as well as increased intake of the "underconsumed." These conclusions are tentative, given that other factors such as the meal planners' education are not controlled in this analysis. Nevertheless, the findings do offer some insight into the particular value that label reading may have for diet improvement. It is relatively easy to learn and incorporate good sources of some desired nutrients (for example, whole grains have fiber and milk has calcium) and include them in the meal planner's and his/her children's diets, as long as the meal planner is aware and motivated. But fat and sodium are in a wide range of food products, and it may require more knowledge of food composition to successfully limit them. Furthermore, fat and sodium play important roles in determining the taste and/or texture of foods, requiring not only knowledge but also discipline.