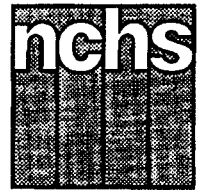


Advance Data



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Dietary Intake of Vitamins, Minerals, and Fiber of Persons Ages 2 Months and Over in the United States: Third National Health and Nutrition Examination Survey, Phase 1, 1988–91

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Introduction

Dietary guidance, food fortification, nutrition intervention programs, and nutrition policy aimed at improving the American diet depend on knowledge of what Americans eat. The concrete link between food and health has been well documented by numerous studies and reports describing the impact of dietary intake on disease prevention and health promotion (1–3). This report on the micronutrient consumption of Americans, including minerals, vitamins, and dietary fiber, is based on information collected in the third National Health and Nutrition Examination Survey (NHANES III), conducted by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC).

As a major component of the National Nutrition Monitoring and Related Research Program, the Health

and Nutrition Examination Surveys (HANES) are an important source of periodic information on the dietary, nutritional, and health status of the U.S. population (4–8). HANES data play a unique role in nutrition monitoring and epidemiologic research, combining personal dietary interviews with standardized health examinations (7–9). NCHS completed three HANES surveys between 1971 and 1984 (5,6,8). NHANES III was conducted in two 3-year nationally representative phases covering 1988–94 (5,10). Data for the first phase, 1988–91, are presented here.

The NHANES III dietary assessment component was designed to meet the survey's nutrition monitoring and nutrition research objectives (9,10). The 24-hour recall method was selected for use in NHANES III to estimate nutrient intake for the population and various subgroups and to study diet-

health relationships (7–9,11–13). Prior to NHANES III, 24-hour recalls were recorded on hard-copy forms and manually coded by dietary interviewers. In 1988, NCHS contracted with the University of Minnesota's Nutrition Coordinating Center to develop an automated, interactive dietary interview and coding system called the NHANES III Dietary Data Collection (DDC) system (14–16). NCHS, the National Heart, Lung and Blood Institute, and the Food and Drug Administration funded the development of the DDC system. Features of the DDC system have been previously described (10,11,14–16) and are summarized in the Technical notes.

This report provides national reference estimates of minerals, vitamins, and dietary fiber for persons 2 months of age and over. Daily dietary estimates are reported by age and

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gender for the total population and for three race-ethnic groups: non-Hispanic whites, non-Hispanic blacks, and Mexican Americans. Intakes of macronutrients were previously reported (11).

Selected dietary intake findings

NHANES III, 1988–91 values for means, standard errors of the means (SEM), and medians are shown by age, sex, and race-ethnicity for minerals (tables 1–8), vitamins (tables 9–19), and dietary fiber (table 20). Findings for selected nutrients and fiber are discussed in the following text.

Interpretation of the NHANES III nutrient data requires some qualifications. Because data are not age-adjusted, race-ethnic comparisons used only age-specific estimates. In addition, sample sizes of non-Hispanic blacks and Mexican Americans are small for some older age categories and estimates may not be stable. These estimates are marked in tables 1–20 with an asterisk (*). Some nutrient estimates are by their nature very skewed (for example, copper, iron, zinc, vitamin A, carotenes, vitamin B₁₂, and vitamin E). This is because food and nutrient intake varies from day to day. Consumption of certain nutrients may be very high or very low for some individuals on a specific day, influencing population distributions. For non-normally distributed variables, the means and standard errors of the means, which assume normality, should be used and interpreted with caution.

Mean iron intakes averaged 15.5 milligrams in non-breastfed infants, were lower among children ages 1–2 years, increased again through adolescence and young adulthood, and leveled off until the oldest age group (table 3). Non-Hispanic black non-breastfed infants had slightly higher intakes (18 milligrams) than non-Hispanic white (15 milligrams) and Mexican American infants (14 milligrams). Mean iron intakes in adolescents and adults were consistently higher in males than in females, coinciding with a similar pattern observed in mean total energy intakes (11). Among males ages 6 years and

over, mean iron intakes were slightly higher in non-Hispanic whites than in non-Hispanic blacks and Mexican Americans. Age-specific mean iron intakes in females were generally similar in all three race-ethnic groups.

Comparison of national nutrient intakes to the Recommended Dietary Allowances (RDAs), standards developed by the Food and Nutrition Board of the National Research Council, is a practical screen to identify potential public health concerns (17). When used in conjunction with information about dietary and health behavior, nutritional biochemistries, and anthropometry, determination of the nutritional status of the population can be made (16,17). Age-specific mean and median iron intakes met or exceeded the RDA for infants and children ages 3–11 years of all race-ethnic groups, but not for children ages 1–2 years. While all adolescent and adult males' mean and median intakes met the RDA, this was not true for most of the female groups.

Some studies have shown that calcium intake plays a role in colon cancer, high blood pressure (hypertension), and kidney stones, and is instrumental in the prevention of osteoporosis (18,19). Recent literature has identified the importance of consuming adequate calcium while bones are still forming to maintain peak bone mass and throughout life (20,21). The RDA for calcium is 1,200 milligrams for adolescents and adults up to age 25 and 800 milligrams for children and adults over age 25 (17). Both mean and median intakes of calcium were higher for males compared with females (table 1). Osteoporosis is more prevalent in women; mean and median calcium intakes were lower than the RDA for almost all female race-ethnic groups above 12 years of age. Age- and sex-specific intakes were generally similar for non-Hispanic whites and Mexican Americans and were lower in non-Hispanic blacks. In males, calcium intakes were highest during adolescence (16–19 years of age) and lower in subsequent age groups, whereas in females, the highest intakes were observed during childhood (6–11 years of age) and began to decline during adolescence.

Mean sodium intakes from food sources were higher in males compared with females at all ages and highest in adolescence and early adulthood, corresponding to a similar pattern in mean energy intakes (table 7) (11). For males, mean sodium intakes were about 600 milligrams during infancy, increased to about 4,800 milligrams in late adolescence and early adulthood, and declined to about 2,900 milligrams in the oldest age group. For females, mean intakes were about 500 milligrams during infancy, increased to about 3,100 milligrams in late adolescence and early adulthood, and then dropped to about 2,200 milligrams in the oldest age group. Overall, adult mean sodium intakes were similar among non-Hispanic whites, non-Hispanic blacks, and Mexican Americans. Mean sodium intakes in the population exceeded the minimum requirements of healthy persons, and the recommended intake of 2,400 milligrams set for adults in 1989 by the National Research Council (17).

The NHANES III data for children show a trend toward slightly higher mean sodium intakes for non-Hispanic black children compared with non-Hispanic white children and Mexican American children in all age groups. The mean sodium intake is consistently higher for non-Hispanic black children in each age group; 300 milligrams higher in children 1–2 years of age, 400 milligrams higher in children 3–5 years of age, 300 milligrams higher in children 6–11 years of age, and 200 milligrams higher in adolescents 12–15 years of age. This trend continued with adolescents 16–19 years of age but not with adults.

Dietary guidance, including the Dietary Guidelines for Americans, have recommended increasing the amount of fruits, vegetables, grains, and legumes in the diet (1,22). These plant foods contain dietary fiber and several nutrients such as carotenes, vitamin C, and folate, which are thought to be protective against many diseases (1,2).

The mean intake of dietary fiber was 17 grams for males and 13 grams for females (table 20). Corresponding median intakes were 15 grams and 11 grams, respectively. Intakes were higher for males compared with females for all

race-ethnic groups. In adults less than 70 years of age, intakes were highest in Mexican Americans, followed by non-Hispanic whites and non-Hispanic blacks. Mean intakes were generally higher for adults compared with children and adolescents. The National Cancer Institute (NCI) has recommended that adults consume 20–30 grams of fiber daily (23). The only groups whose mean intakes reached the NCI goal were Mexican American males ages 16–69 years (ranging from 20–26 grams) and non-Hispanic white males ages 30–39 years (20 grams). The median intakes of dietary fiber for adults were 12–14 grams, indicating that a large portion of the U.S. population did not meet the NCI goal for dietary fiber intake on the day prior to their examination.

Age-specific mean and median intakes of carotenes were also higher in males than in females and differed among the race-ethnic groups studied (table 11). Adults generally had higher mean intakes of carotenes than children and adolescents. Mean vitamin C intakes were also higher in males (115 milligrams) than females (95 milligrams) but were similar among all three race-ethnic groups (table 18).

The mean intake of folate was 275 milligrams for persons 2 months of age and over (table 16). Males had consistently higher intakes of folate than females in all age and race-ethnic groups. Age-specific mean folate intakes were generally higher in non-Hispanic whites and Mexican Americans and lowest in non-Hispanic blacks for both sexes. The highest folate intakes occurred during late adolescence and young adulthood and declined thereafter.

Recent studies have demonstrated that supplementation of folic acid by women reduces their risk of having children with spina bifida or other neural tube defects (24,25). CDC has recommended that women of childbearing age consume 0.4 milligrams of folic acid per day (26). Mean and median intakes from food for women of childbearing age were below this recommendation.

Summary

Intervention strategies aimed at reducing the prevalence of nutrition-

related diseases, including designing nutrition policies and nutrition education and assistance programs, require effective monitoring of what Americans are eating. Nutrient reference data from the third National Health and Nutrition Examination Survey provide essential information to achieve these goals.

Mean and median iron intakes were adequate in males of all race-ethnic groups but were generally low in females and young children. Mean and median calcium intakes were also higher in males than in females and were lower than recommendations in adolescents and in women of all ages. Mean sodium intakes for all age, sex, and race-ethnic groups exceeded the minimum requirements of healthy persons and were higher in non-Hispanic black children and adolescents than in non-Hispanic white and Mexican American children and adolescents. Mean fiber intakes also did not meet recommendations in most subgroups and were higher in Mexican American adults followed by non-Hispanic white adults and non-Hispanic black adults.

Further research is planned to compare the food sources of energy and nutrients consumed by different population groups in NHANES III to similar results from earlier national surveys. NHANES III, Phase 2 (1991–94) recalls were collected using the same dietary method as those collected in Phase 1 (1988–91), and other analyses will compare findings from both phases of NHANES III.

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Symbols

- Data not available
 - ... Category not applicable
 - Quantity zero
 - 0.0 Quantity more than zero but less than 0.05
 - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
 - * Estimate is less reliable based on statistical criteria of sample size and coefficient of variation
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Table 1. Calcium intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	857	11	742	5,780	886	11	774	3,883	696	10	584	4,598	890	27	776
2-11 months ²	871	759	18	665	473	789	18	696	162	665	27	604	163	754	47	655
1-2 years ²	1,231	835	17	800	424	852	20	817	355	717	24	656	402	853	35	778
3-5 years	1,547	855	16	798	425	878	22	822	454	742	21	670	609	862	30	778
6-11 years	1,745	938	16	878	511	960	22	891	452	794	22	719	727	998	31	930
12-15 years	711	971	31	899	221	994	42	923	191	804	41	662	269	999	62	910
16-19 years	765	1,050	38	871	245	1,125	51	980	217	896	49	752	270	982	68	809
20-29 years	1,682	924	21	788	460	968	30	859	499	756	28	619	666	905	38	778
30-39 years	1,526	899	24	758	550	953	30	813	454	646	24	516	472	923	47	750
40-49 years	1,228	758	20	649	467	785	24	698	338	609	24	513	366	797	42	674
50-59 years	929	747	23	631	472	775	24	663	230	550	26	452	196	724	53	586
60-69 years	1,106	787	23	673	493	814	26	701	289	534	25	423	305	710	42	591
70-79 years	851	708	22	605	538	728	21	630	186	574	32	465	111	630	54	533
80 years and over	609	659	23	561	501	671	18	578	56	493	51	413	42	*606	*	*472
Male																
All ages ²	7,322	976	17	856	2,887	1,016	18	901	1,903	776	16	654	2,250	977	41	856
2-11 months ²	439	784	26	699	241	810	27	743	78	682	41	623	89	791	54	683
1-2 years ²	601	852	24	799	202	860	29	809	182	732	32	720	186	872	45	807
3-5 years	744	894	23	834	219	928	31	849	210	757	28	713	281	894	36	830
6-11 years	868	1,007	22	965	252	1,041	30	994	239	834	29	761	344	1,037	36	986
12-15 years	398	1,138	46	1,053	98	1,179	63	1,078	95	870	56	717	129	1,135	82	1,020
16-19 years	368	1,274	61	1,102	112	1,373	83	1,234	103	1,076	74	907	139	1,128	86	953
20-29 years	844	1,075	32	942	216	1,142	46	999	245	875	44	712	349	1,028	48	870
30-39 years	735	1,049	39	915	271	1,122	49	994	213	733	39	554	225	995	59	854
40-49 years	626	834	31	728	243	851	35	756	178	703	38	592	181	890	50	774
50-59 years	473	854	36	720	251	902	37	785	105	533	38	418	96	749	65	614
60-69 years	546	875	34	722	247	895	37	734	141	609	42	480	152	837	53	810
70-79 years	444	808	34	671	285	832	31	688	93	608	47	516	60	673	65	558
80 years and over	296	721	31	634	250	742	25	671	21	*512	*	*467	19	*626	*	*476
Female																
All ages ²	7,479	744	12	652	2,893	764	13	669	1,980	626	12	536	2,348	799	34	694
2-11 months ²	432	732	20	629	232	765	23	652	84	650	32	592	74	712	55	590
1-2 years ²	630	817	20	800	222	843	26	819	173	699	33	631	216	832	36	762
3-5 years	803	815	18	756	206	827	27	773	244	727	29	629	328	829	34	724
6-11 years	877	867	20	814	259	879	28	822	213	755	30	688	383	958	37	890
12-15 years	373	796	33	685	123	801	45	744	96	737	54	613	140	872	58	790
16-19 years	397	822	34	745	133	866	46	797	114	725	51	620	131	816	63	676
20-29 years	838	778	22	640	244	806	33	647	254	656	30	582	317	754	36	653
30-39 years	791	753	22	649	279	788	29	678	241	574	25	492	247	847	50	667
40-49 years	602	685	22	575	224	717	29	614	160	530	25	442	185	701	46	567
50-59 years	456	651	23	557	221	660	26	559	125	564	31	502	100	701	58	575
60-69 years	560	711	26	625	246	743	32	660	148	477	26	399	153	606	42	494
70-79 years	407	636	24	571	253	651	24	586	93	549	40	436	51	*593	*	*511
80 years and over	313	626	28	531	251	633	24	544	35	484	63	347	23	*595	*	*436

¹Includes data for race-ethnic groups not shown separately.

²Excludes nursing infants and children.

Table 2. Copper intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	1.26	0.01	1.09	5,780	1.27	0.02	1.10	3,883	1.16	0.02	0.97	4,598	1.24	0.03	1.07
2-11 months ²	871	0.77	0.02	0.73	473	0.76	0.02	0.72	162	0.79	0.03	0.77	163	0.78	0.03	0.76
1-2 years ²	1,231	0.69	0.01	0.65	424	0.68	0.01	0.64	355	0.72	0.02	0.68	402	0.73	0.03	0.67
3-5 years	1,547	0.87	0.01	0.80	425	0.86	0.02	0.79	454	0.92	0.02	0.84	609	0.89	0.02	0.80
6-11 years	1,745	1.03	0.02	0.94	511	1.02	0.03	0.92	452	1.07	0.04	0.96	727	1.04	0.02	0.95
12-15 years	711	1.18	0.04	1.03	221	1.17	0.05	1.02	191	1.20	0.06	1.06	269	1.18	0.06	0.96
16-19 years	765	1.34	0.06	1.13	245	1.32	0.05	1.11	217	1.34	0.11	1.11	270	1.42	0.19	1.15
20-29 years	1,682	1.38	0.03	1.20	460	1.36	0.04	1.20	499	1.39	0.07	1.12	666	1.40	0.04	1.25
30-39 years	1,526	1.45	0.03	1.25	550	1.49	0.04	1.28	454	1.23	0.05	1.03	472	1.45	0.07	1.25
40-49 years	1,228	1.35	0.03	1.18	467	1.37	0.04	1.21	338	1.15	0.05	0.96	366	1.36	0.05	1.18
50-59 years	929	1.31	0.04	1.12	472	1.34	0.05	1.15	230	1.10	0.06	0.89	196	1.23	0.05	1.15
60-69 years	1,106	1.26	0.03	1.10	493	1.29	0.04	1.13	289	0.99	0.04	0.87	305	1.11	0.05	1.00
70-79 years	851	1.15	0.03	1.03	538	1.16	0.03	1.04	186	0.99	0.05	0.86	111	1.11	0.10	0.92
80 years and over	609	1.01	0.03	0.93	501	1.03	0.03	0.94	56	0.92	0.12	0.74	42	*0.84	*	*0.76
Male																
All ages ²	7,322	1.45	0.02	1.27	2,887	1.48	0.03	1.29	1,903	1.31	0.04	1.09	2,250	1.43	0.05	1.25
2-11 months ²	439	0.78	0.03	0.74	241	0.79	0.03	0.74	78	0.79	0.04	0.78	89	0.77	0.04	0.76
1-2 years ²	601	0.73	0.02	0.68	202	0.72	0.02	0.68	182	0.76	0.03	0.71	186	0.76	0.04	0.68
3-5 years	744	0.91	0.02	0.83	219	0.90	0.03	0.83	210	0.95	0.03	0.87	281	0.94	0.03	0.83
6-11 years	868	1.08	0.02	1.01	252	1.08	0.03	1.01	239	1.09	0.04	0.99	344	1.10	0.03	1.01
12-15 years	338	1.33	0.05	1.19	98	1.34	0.07	1.21	95	1.27	0.07	1.14	129	1.40	0.09	1.18
16-19 years	368	1.56	0.10	1.38	112	1.56	0.08	1.39	103	1.57	0.19	1.30	139	1.72	0.31	1.32
20-29 years	844	1.63	0.05	1.46	216	1.63	0.06	1.49	245	1.69	0.11	1.40	349	1.62	0.05	1.48
30-39 years	735	1.74	0.05	1.55	271	1.80	0.07	1.63	213	1.47	0.08	1.27	225	1.70	0.11	1.51
40-49 years	626	1.58	0.05	1.45	243	1.62	0.06	1.52	178	1.35	0.08	1.11	181	1.60	0.06	1.43
50-59 years	473	1.52	0.06	1.29	251	1.57	0.07	1.30	105	1.19	0.07	1.02	96	1.39	0.07	1.29
60-69 years	546	1.45	0.06	1.24	247	1.47	0.07	1.26	141	1.05	0.06	0.90	152	1.36	0.08	1.32
70-79 years	444	1.30	0.05	1.16	285	1.32	0.05	1.17	93	1.08	0.08	0.94	60	1.20	0.10	1.16
80 years and over	296	1.18	0.05	1.10	250	1.21	0.04	1.13	21	*0.79	*	*0.68	19	*1.01	*	*0.84
Female																
All ages ²	7,479	1.07	0.02	0.96	2,893	1.07	0.02	0.97	1,980	1.03	0.02	0.88	2,348	1.04	0.02	0.92
2-11 months ²	432	0.75	0.02	0.73	232	0.73	0.02	0.71	84	0.79	0.04	0.76	74	0.78	0.05	0.76
1-2 years ²	630	0.65	0.01	0.62	222	0.65	0.02	0.62	173	0.67	0.03	0.65	216	0.69	0.03	0.62
3-5 years	803	0.83	0.02	0.74	206	0.81	0.03	0.73	244	0.89	0.03	0.83	328	0.84	0.03	0.77
6-11 years	877	0.99	0.03	0.87	259	0.97	0.05	0.86	213	1.05	0.06	0.92	383	0.98	0.03	0.88
12-15 years	373	1.03	0.05	0.88	123	0.99	0.07	0.85	96	1.13	0.08	0.93	140	0.98	0.05	0.89
16-19 years	397	1.12	0.05	0.96	133	1.07	0.06	0.94	114	1.12	0.07	0.99	131	1.08	0.07	1.00
20-29 years	838	1.13	0.03	0.99	244	1.11	0.04	1.00	254	1.13	0.07	0.92	317	1.14	0.04	1.02
30-39 years	791	1.17	0.03	1.06	279	1.19	0.04	1.09	241	1.04	0.05	0.91	247	1.18	0.06	1.06
40-49 years	602	1.13	0.03	1.05	224	1.13	0.04	1.07	160	0.98	0.05	0.86	185	1.10	0.05	0.96
50-59 years	456	1.11	0.04	0.98	221	1.12	0.05	1.03	125	1.04	0.08	0.83	100	1.09	0.06	1.00
60-69 years	560	1.11	0.03	1.00	246	1.14	0.04	1.03	148	0.95	0.05	0.84	153	0.91	0.04	0.87
70-79 years	407	1.04	0.03	0.93	253	1.04	0.03	0.94	93	0.92	0.06	0.83	51	1.03	0.17	0.81
80 years and over	313	0.92	0.03	0.87	251	0.92	0.03	0.87	35	*0.98	*	*0.75	23	*0.74	*	*0.63

¹Includes data for race-ethnic groups not shown separately.²Excludes nursing infants and children.

NOTE: Estimates of copper intake are very skewed; means and standard errors of the means should be used and interpreted with caution.

Table 3. Iron intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	14.70	0.19	12.25	5,780	14.94	0.23	12.43	3,883	13.33	0.19	11.36	4,598	14.06	0.30	12.05
2-11 months ²	871	15.50	0.50	14.40	473	15.17	0.50	14.11	162	18.16	0.91	16.34	163	14.43	0.92	14.07
1-2 years ²	1,231	9.53	0.24	8.46	424	9.54	0.27	8.50	355	9.79	0.36	8.73	402	9.46	0.44	7.92
3-5 years	1,547	11.86	0.26	10.31	425	11.90	0.38	10.12	454	12.26	0.35	10.89	609	11.60	0.36	9.96
6-11 years	1,745	13.76	0.30	11.88	511	13.96	0.42	12.14	452	12.86	0.33	11.54	727	13.55	0.40	11.60
12-15 years	711	15.98	1.17	13.03	221	16.39	1.81	13.08	191	13.68	0.70	11.76	269	14.68	0.85	12.05
16-19 years	765	15.61	0.57	13.04	245	15.64	0.75	12.99	217	15.23	0.83	12.76	270	15.16	0.91	12.37
20-29 years	1,682	15.12	0.33	13.01	460	15.04	0.48	12.60	499	14.83	0.50	12.86	666	15.30	0.43	13.11
30-39 years	1,526	15.91	0.43	13.46	550	16.39	0.55	13.99	454	13.50	0.51	11.51	472	15.17	0.55	13.25
40-49 years	1,228	15.05	0.39	12.69	467	15.42	0.49	12.81	338	13.09	0.53	10.87	366	13.89	0.44	12.47
50-59 years	929	14.41	0.47	12.04	472	14.80	0.51	12.12	230	11.74	0.50	9.86	196	13.53	0.66	12.02
60-69 years	1,106	14.64	0.44	12.06	493	14.93	0.49	12.26	289	11.76	0.53	9.86	305	12.41	0.58	10.33
70-79 years	851	14.06	0.46	11.33	538	14.25	0.42	11.37	186	12.37	0.87	9.87	111	12.67	1.27	9.58
80 years and over	609	13.31	0.57	10.55	501	13.48	0.47	10.74	56	12.03	1.27	9.04	42	*10.07	*	*8.14
Male																
All ages ²	7,322	17.17	0.31	14.66	2,887	17.59	0.39	15.00	1,903	15.28	0.32	13.00	2,250	15.93	0.47	13.84
2-11 months ²	439	15.89	0.73	15.01	241	15.86	0.78	15.13	78	17.88	1.13	16.03	89	14.13	0.90	15.11
1-2 years ²	601	9.74	0.35	8.61	202	9.56	0.36	8.76	182	10.58	0.50	9.46	186	9.50	0.59	7.75
3-5 years	744	12.47	0.37	10.45	219	12.48	0.52	10.33	210	12.40	0.50	10.58	281	12.88	0.54	10.79
6-11 years	868	14.54	0.41	13.02	252	14.84	0.60	13.16	239	13.81	0.47	12.18	344	14.59	0.59	12.50
12-15 years	338	19.51	2.21	14.93	98	20.50	3.64	15.30	95	14.55	0.90	13.23	129	17.44	1.25	14.25
16-19 years	368	18.64	0.86	16.75	112	19.22	1.19	17.47	103	17.68	1.24	14.27	139	17.61	1.33	13.64
20-29 years	844	17.87	0.49	16.08	216	17.86	0.73	15.89	245	18.02	0.80	15.16	349	17.45	0.56	15.70
30-39 years	735	19.16	0.72	16.17	271	19.83	0.95	16.84	213	16.50	0.84	13.97	225	17.19	0.73	15.28
40-49 years	626	18.18	0.63	16.14	243	18.64	0.79	16.28	178	15.89	0.84	13.71	181	15.92	0.58	14.59
50-59 years	473	17.25	0.78	13.98	251	17.94	0.84	14.40	105	12.94	0.81	11.21	96	15.50	0.92	13.95
60-69 years	546	16.59	0.62	14.31	247	16.84	0.69	14.71	141	13.24	0.82	10.59	152	14.65	0.81	13.50
70-79 years	444	15.84	0.68	13.09	285	16.10	0.60	13.24	93	13.49	1.60	9.78	60	14.31	1.58	11.52
80 years and over	296	16.22	0.96	13.22	250	16.65	0.80	13.27	21	*10.48	*	*8.66	19	*12.69	*	*11.69
Female																
All ages ²	7,479	12.37	0.19	10.63	2,893	12.45	0.22	10.72	1,980	11.63	0.21	10.04	2,348	12.09	0.35	10.46
2-11 months ²	432	15.10	0.60	14.08	232	14.39	0.61	13.44	84	18.41	1.31	16.65	74	14.78	1.56	12.08
1-2 years ²	630	9.29	0.30	8.22	222	9.51	0.39	8.30	173	8.87	0.45	7.70	216	9.40	0.57	8.02
3-5 years	803	11.23	0.32	9.98	206	11.29	0.54	9.83	244	12.13	0.45	10.99	328	10.31	0.37	9.09
6-11 years	877	12.96	0.38	10.70	259	13.08	0.57	10.66	213	11.89	0.42	10.69	383	12.50	0.44	10.53
12-15 years	373	12.26	0.54	10.17	123	12.13	0.72	10.06	96	12.79	0.98	9.76	140	12.14	0.89	10.15
16-19 years	397	12.52	0.60	10.28	133	11.90	0.78	9.50	114	12.89	0.95	10.39	131	12.38	0.84	10.23
20-29 years	838	12.43	0.36	11.11	244	12.43	0.55	11.11	254	12.12	0.46	10.87	317	12.68	0.50	10.80
30-39 years	791	12.73	0.36	10.86	279	13.01	0.48	11.07	241	11.00	0.46	9.69	247	13.03	0.66	11.09
40-49 years	602	12.05	0.34	11.06	224	12.15	0.45	11.23	160	10.74	0.50	9.72	185	11.80	0.50	10.67
50-59 years	456	11.84	0.40	10.59	221	11.95	0.46	10.74	125	10.83	0.54	9.53	100	11.72	0.74	10.65
60-69 years	560	12.97	0.54	10.41	246	13.23	0.67	10.68	148	10.64	0.60	9.29	153	10.56	0.66	8.66
70-79 years	407	12.77	0.54	10.26	253	12.90	0.56	10.26	93	11.55	0.69	9.89	51	11.26	1.73	8.32
80 years and over	313	11.76	0.62	9.55	251	11.80	0.55	9.57	35	*12.73	*	*9.15	23	*8.62	*	*6.78

¹Includes data for race-ethnic groups not shown separately. ²Excludes nursing infants and children.
 NOTE: Estimates of iron intake are very skewed; means and standard errors of the means should be used and interpreted with caution.

Table 4. Magnesium intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	279	2.7	249	5,780	286	3.0	257	3,883	234	4.1	204	4,598	275	6.0	247
2-11 months ²	871	120	3.1	106	473	124	3.2	111	162	108	4.9	97	163	116	6.3	106
1-2 years ²	1,231	182	3.1	174	424	183	3.8	176	355	174	5.0	166	402	188	5.8	174
3-5 years	1,547	208	3.5	195	425	208	5.0	194	454	204	5.0	196	609	214	5.1	199
6-11 years	1,745	231	3.7	214	511	231	5.1	215	452	216	5.6	201	727	246	5.4	229
12-15 years	711	250	7.8	231	221	251	11.2	227	191	232	10.5	204	269	251	10.7	227
16-19 years	765	286	9.1	245	245	291	12.2	246	217	257	11.9	222	270	282	13.3	246
20-29 years	1,682	295	5.9	262	460	298	8.4	265	499	262	9.2	223	666	314	8.5	277
30-39 years	1,526	317	6.9	282	550	329	8.8	296	454	251	8.1	221	472	316	10.3	281
40-49 years	1,228	299	6.3	271	467	311	7.7	280	338	240	9.4	209	366	298	9.5	286
50-59 years	929	296	7.4	271	472	306	8.0	278	230	224	9.2	191	196	284	12.4	275
60-69 years	1,106	290	7.1	265	493	297	8.1	269	289	224	9.2	195	305	254	9.9	227
70-79 years	851	267	6.6	241	538	272	6.2	246	186	220	11.3	195	111	235	14.8	205
80 years and over	609	239	7.0	223	501	242	5.7	228	56	200	18.0	175	42	*209	*	*173
Male																
All ages ²	7,322	321	4.3	290	2,887	332	4.7	300	1,903	265	6.7	232	2,250	313	9.5	287
2-11 months ²	439	125	4.3	112	241	129	4.4	119	78	110	6.8	97	89	123	7.4	110
1-2 years ²	601	189	4.5	180	202	190	5.3	182	182	182	6.7	177	186	193	8.7	173
3-5 years	744	219	4.9	206	219	221	6.7	204	210	207	6.8	197	281	225	7.2	218
6-11 years	868	243	4.9	229	252	245	6.6	233	239	221	7.0	203	344	257	6.9	244
12-15 years	338	291	11.7	275	98	299	17.1	279	95	252	15.4	229	129	285	15.0	261
16-19 years	368	340	13.0	305	112	353	17.9	313	103	303	18.1	273	139	323	17.7	282
20-29 years	844	351	8.5	315	216	358	12.3	326	245	320	14.3	280	349	366	11.1	341
30-39 years	735	375	10.5	336	271	391	13.1	359	213	297	12.5	272	225	364	14.8	343
40-49 years	626	349	9.0	323	243	361	10.4	333	178	286	15.3	246	181	348	12.2	332
50-59 years	473	343	11.2	313	251	358	11.5	327	105	242	14.4	209	96	312	15.6	307
60-69 years	546	328	11.1	299	247	333	12.1	306	141	246	14.0	205	152	299	13.3	273
70-79 years	444	300	9.8	272	285	308	8.9	282	93	222	15.5	198	60	274	17.6	244
80 years and over	296	276	10.7	256	250	282	8.6	263	*21	*	*20.5	173	19	*269	*	*216
Female																
All ages ²	7,479	238	3.0	219	2,893	243	3.2	224	1,980	207	4.7	187	2,348	236	6.7	218
2-11 months ²	432	114	3.7	102	232	118	4.0	104	84	107	6.1	94	74	108	8.4	86
1-2 years ²	630	174	3.6	169	222	176	4.6	172	173	165	6.3	150	216	182	5.6	175
3-5 years	803	197	4.1	184	206	195	6.5	179	244	200	6.4	193	328	203	5.5	186
6-11 years	877	218	4.6	198	259	217	6.6	196	213	211	7.7	198	383	235	6.7	218
12-15 years	373	206	7.6	183	123	201	10.5	179	96	211	11.9	195	140	219	11.2	208
16-19 years	397	230	9.2	188	133	227	11.5	186	114	213	11.8	175	131	235	13.9	197
20-29 years	838	240	5.8	220	244	243	8.3	223	254	213	9.0	180	317	250	8.4	229
30-39 years	791	261	6.3	241	279	268	8.3	248	241	213	8.2	196	247	266	9.4	251
40-49 years	602	251	6.3	233	224	259	8.3	242	160	201	8.0	180	185	247	9.8	226
50-59 years	456	253	7.0	229	221	259	8.0	239	125	211	10.3	186	100	257	14.9	256
60-69 years	560	257	7.1	236	246	265	8.6	245	148	208	10.5	189	153	216	10.3	200
70-79 years	407	244	7.3	224	253	247	7.2	226	93	219	14.4	193	51	201	17.8	169
80 years and over	313	220	7.5	210	251	221	6.5	211	35	205	22.8	174	23	*176	*	*154

¹Includes data for race-ethnic groups not shown separately.

²Excludes nursing infants and children.

Table 5. Phosphorus intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	1,268	10	1,149	5,780	1,287	11	1,162	3,883	1,132	17	1,012	4,598	1,322	27	1,198
2-11 months ²	871	631	15	541	473	655	16	555	162	552	26	476	163	638	37	531
1-2 years ²	1,231	941	15	900	424	952	19	908	355	868	25	829	402	970	28	906
3-5 years	1,547	1,054	16	986	425	1,062	23	983	454	999	24	969	609	1,071	26	1,006
6-11 years	1,745	1,204	17	1,148	511	1,206	22	1,152	452	1,127	30	1,057	727	1,276	28	1,203
12-15 years	711	1,303	34	1,199	221	1,298	45	1,193	191	1,193	53	1,034	269	1,345	59	1,257
16-19 years	765	1,492	43	1,311	245	1,544	59	1,360	217	1,378	60	1,193	270	1,446	68	1,290
20-29 years	1,682	1,421	26	1,275	460	1,434	37	1,283	499	1,326	47	1,171	666	1,504	41	1,331
30-39 years	1,526	1,395	26	1,268	550	1,437	34	1,313	454	1,176	38	1,033	472	1,456	46	1,302
40-49 years	1,228	1,255	23	1,169	467	1,273	27	1,198	338	1,113	40	1,010	366	1,337	43	1,256
50-59 years	929	1,208	28	1,112	472	1,236	30	1,134	230	976	35	891	196	1,223	52	1,192
60-69 years	1,106	1,200	26	1,093	493	1,224	30	1,134	289	952	38	857	305	1,090	41	1,025
70-79 years	851	1,071	24	976	538	1,088	23	990	186	925	42	803	111	982	56	924
80 years and over	609	978	26	897	501	989	21	914	56	829	75	785	42	*885	*	*804
Male																
All ages ²	439	658	21	563	241	677	22	575	78	573	37	513	89	687	44	601
2-11 months ²	601	975	21	943	202	987	27	960	182	895	33	876	186	987	39	916
1-2 years ²	744	1,112	23	1,034	219	1,138	32	1,031	210	1,016	32	978	281	1,115	34	1,069
3-5 years	868	1,274	22	1,234	252	1,282	30	1,230	239	1,163	35	1,104	344	1,347	35	1,294
6-11 years	7,322	1,479	16	1,346	2,887	1,512	17	1,379	1,903	1,290	29	1,149	2,250	1,501	41	1,382
12-15 years	338	1,517	49	1,416	98	1,529	68	1,416	95	1,275	77	1,159	129	1,551	82	1,370
16-19 years	368	1,825	65	1,641	112	1,916	92	1,691	103	1,633	93	1,506	139	1,660	89	1,462
20-29 years	844	1,712	39	1,571	216	1,751	56	1,590	245	1,613	79	1,431	349	1,748	52	1,662
30-39 years	735	1,666	41	1,533	271	1,728	52	1,597	213	1,390	61	1,231	225	1,678	61	1,615
40-49 years	626	1,452	33	1,374	243	1,462	38	1,397	178	1,333	65	1,166	181	1,549	53	1,514
50-59 years	473	1,418	43	1,336	251	1,471	45	1,366	105	1,028	54	902	96	1,338	67	1,278
60-69 years	546	1,378	41	1,259	247	1,395	45	1,283	141	1,111	65	1,005	152	1,298	52	1,193
70-79 years	444	1,230	35	1,146	285	1,259	33	1,158	93	948	57	825	60	1,126	68	1,018
80 years and over	296	1,147	38	1,063	250	1,167	31	1,092	21	*904	*	*898	19	*1,047	*	*871
Female																
All ages ²	7,479	1,069	10	994	2,893	1,076	11	1,006	1,980	995	19	908	2,348	1,135	31	1,042
2-11 months ²	432	604	19	519	232	631	21	538	84	534	30	464	74	582	45	475
1-2 years ²	630	904	18	870	222	917	24	884	173	836	31	781	216	951	29	898
3-5 years	803	993	18	942	206	984	28	922	244	983	30	945	328	1,026	30	951
6-11 years	877	1,132	22	1,072	259	1,130	31	1,076	213	1,091	41	1,021	383	1,204	33	1,137
12-15 years	373	1,079	35	1,024	123	1,058	48	1,044	96	1,108	60	970	140	1,155	58	1,126
16-19 years	397	1,152	38	1,062	133	1,154	52	1,057	114	1,134	56	1,041	131	1,203	68	1,080
20-29 years	838	1,137	24	1,046	244	1,141	35	1,053	254	1,082	37	969	317	1,207	40	1,060
30-39 years	791	1,130	24	1,068	279	1,151	33	1,106	241	997	35	918	247	1,222	46	1,113
40-49 years	602	1,067	23	1,012	224	1,081	31	1,026	160	928	32	857	185	1,118	46	993
50-59 years	456	1,018	27	963	221	1,025	31	974	125	936	38	880	100	1,117	59	1,099
60-69 years	560	1,048	28	983	246	1,074	35	998	148	832	33	772	153	919	43	876
70-79 years	407	957	27	887	253	962	27	900	93	908	53	785	51	859	64	818
80 years and over	313	888	30	812	251	895	27	831	35	795	87	727	23	*796	*	*731

¹Includes data for race-ethnic groups not shown separately.

²Excludes nursing infants and children.

Table 6. Potassium intake in milligrams by age, sex, race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	2,652	25	2,414	5,780	2,729	28	2,482	3,883	2,251	35	2,028	4,598	2,540	47	2,316
2-11 months ²	871	1,313	30	1,195	473	1,356	31	1,224	162	1,165	48	1,059	163	1,319	62	1,200
1-2 years ²	1,231	1,900	32	1,834	424	1,893	39	1,835	355	1,859	54	1,815	402	1,947	51	1,834
3-5 years	1,547	2,040	33	1,934	425	2,030	47	1,916	454	2,031	53	1,934	609	2,117	50	1,997
6-11 years	1,745	2,223	34	2,102	511	2,212	47	2,076	452	2,138	53	2,040	727	2,348	50	2,188
12-15 years	711	2,397	72	2,192	221	2,394	102	2,152	191	2,298	102	2,133	269	2,389	107	2,148
16-19 years	765	2,713	86	2,371	245	2,738	113	2,397	217	2,586	124	2,196	270	2,570	118	2,346
20-29 years	1,682	2,764	54	2,522	460	2,800	78	2,554	499	2,517	86	2,234	666	2,844	75	2,563
30-39 years	1,526	2,960	60	2,646	550	3,100	79	2,791	454	2,304	73	2,037	472	2,799	83	2,566
40-49 years	1,228	2,816	56	2,566	467	2,929	70	2,708	338	2,245	81	1,965	366	2,674	84	2,561
50-59 years	929	2,823	66	2,622	472	2,934	72	2,709	230	2,119	77	1,956	196	2,622	111	2,533
60-69 years	1,106	2,805	63	2,613	493	2,872	71	2,692	289	2,100	78	1,955	305	2,362	86	2,214
70-79 years	851	2,594	60	2,409	538	2,651	57	2,470	186	2,119	98	1,867	111	2,250	136	2,237
80 years and over	609	2,351	61	2,257	501	2,382	50	2,312	56	2,013	171	1,690	42	*1,968	*	*1,944
Male																
All ages ²	7,322	3,029	39	2,754	2,887	3,136	43	2,860	1,903	2,547	57	2,295	2,250	2,841	72	2,651
2-11 months ²	439	1,366	41	1,232	241	1,413	42	1,288	78	1,182	68	1,084	89	1,404	73	1,291
1-2 years ²	601	1,962	44	1,922	202	1,943	52	1,922	182	1,924	72	1,908	186	1,975	70	1,846
3-5 years	744	2,110	46	1,998	219	2,111	62	1,970	210	2,074	69	1,979	281	2,181	68	2,092
6-11 years	868	2,361	46	2,225	252	2,367	63	2,231	239	2,219	71	2,049	344	2,471	61	2,288
12-15 years	338	2,791	105	2,627	98	2,879	153	2,643	95	2,429	144	2,192	129	2,726	150	2,448
16-19 years	368	3,208	125	2,978	112	3,289	171	3,175	103	3,061	192	2,872	139	2,871	145	2,579
20-29 years	844	3,280	79	3,038	216	3,353	117	3,097	245	3,105	140	2,665	349	3,263	92	3,021
30-39 years	735	3,451	89	3,133	271	3,627	113	3,344	213	2,710	116	2,444	225	3,153	108	3,049
40-49 years	626	3,263	81	3,083	243	3,386	98	3,209	178	2,654	128	2,394	181	3,075	100	3,019
50-59 years	473	3,240	97	2,992	251	3,397	101	3,064	105	2,247	117	2,103	96	2,841	141	2,824
60-69 years	546	3,107	92	2,861	247	3,145	98	2,924	141	2,280	126	2,093	152	2,747	107	2,629
70-79 years	444	2,899	86	2,704	285	2,978	79	2,760	93	2,209	143	1,961	60	2,591	156	2,406
80 years and over	296	2,595	86	2,456	250	2,635	69	2,505	21	*2,093	*	*1,766	19	*2,285	*	*2,073
Female																
All ages ²	7,479	2,296	28	2,145	2,893	2,348	31	2,208	1,980	1,992	38	1,828	2,348	2,225	56	2,041
2-11 months ²	432	1,258	35	1,149	232	1,292	40	1,174	84	1,151	55	1,041	74	1,220	83	1,044
1-2 years ²	630	1,832	37	1,746	222	1,841	50	1,754	173	1,784	66	1,734	216	1,917	60	1,824
3-5 years	803	1,968	39	1,860	206	1,946	60	1,859	244	1,989	66	1,827	328	2,053	61	1,941
6-11 years	877	2,080	40	1,947	259	2,056	59	1,901	213	2,055	64	1,972	383	2,224	67	2,079
12-15 years	373	1,984	70	1,745	123	1,891	93	1,662	96	2,163	118	1,841	140	2,078	110	1,945
16-19 years	397	2,208	87	1,965	133	2,162	101	1,935	114	2,133	114	1,882	131	2,227	146	1,944
20-29 years	838	2,260	49	2,104	244	2,289	71	2,134	254	2,019	68	1,858	317	2,333	87	2,052
30-39 years	791	2,480	57	2,269	279	2,582	80	2,356	241	1,965	67	1,756	247	2,424	96	2,223
40-49 years	602	2,388	55	2,246	224	2,465	72	2,368	160	1,903	71	1,755	185	2,262	102	2,013
50-59 years	456	2,446	65	2,287	221	2,515	76	2,342	125	2,023	84	1,892	100	2,421	138	2,369
60-69 years	560	2,547	69	2,422	246	2,630	86	2,495	148	1,964	78	1,850	153	2,046	104	1,888
70-79 years	407	2,375	66	2,204	253	2,412	67	2,221	93	2,052	113	1,777	51	1,957	178	1,607
80 years and over	313	2,221	71	2,129	251	2,247	63	2,146	35	1,976	187	1,585	23	*1,794	*	*1,678

¹Includes data for race-ethnic groups not shown separately.

²Excludes nursing infants and children.

Table 7. Sodium intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	3,289	33	2,899	5,780	3,286	40	2,921	3,883	3,265	39	2,834	4,598	3,062	41	2,725
2-11 months ²	871	575	26	337	473	560	25	346	162	519	53	290	163	685	62	379
1-2 years ²	1,231	1,938	38	1,853	424	1,912	45	1,870	355	2,210	74	2,018	402	2,001	62	1,779
3-5 years	1,547	2,531	43	2,288	425	2,460	59	2,252	454	2,864	75	2,609	609	2,475	61	2,214
6-11 years	1,745	2,998	45	2,750	511	2,945	62	2,661	452	3,222	82	2,988	727	2,922	62	2,677
12-15 years	711	3,487	101	3,203	221	3,393	127	3,213	191	3,561	166	3,179	269	3,288	158	2,839
16-19 years	765	3,948	124	3,430	245	3,980	170	3,414	217	4,107	191	3,629	270	3,369	148	2,998
20-29 years	1,682	3,821	79	3,290	460	3,853	114	3,295	499	3,976	144	3,468	666	3,446	93	3,032
30-39 years	1,526	3,703	77	3,297	550	3,744	96	3,385	454	3,470	124	3,005	472	3,320	99	3,009
40-49 years	1,228	3,429	79	3,052	467	3,388	87	3,070	338	3,295	123	2,825	366	3,220	111	2,969
50-59 years	929	3,082	77	2,828	472	3,104	82	2,853	230	2,768	117	2,422	196	3,069	148	2,750
60-69 years	1,106	2,960	70	2,736	493	3,008	77	2,782	289	2,504	115	2,263	305	2,555	102	2,272
70-79 years	851	2,717	69	2,457	538	2,722	65	2,482	186	2,370	126	1,986	111	2,514	185	2,114
80 years and over	609	2,461	71	2,266	501	2,496	60	2,316	56	2,033	179	1,800	42	*2,260	*	*2,056
Male																
All ages ²	7,322	3,853	52	3,395	2,887	3,888	64	3,460	1,903	3,744	65	3,250	2,250	3,454	64	3,105
2-11 months ²	439	624	37	359	241	589	32	364	78	588	88	306	89	804	87	524
1-2 years ²	601	2,031	53	1,956	202	2,013	60	1,989	182	2,350	105	2,270	186	2,048	92	1,767
3-5 years	744	2,675	63	2,398	219	2,616	82	2,276	210	2,922	108	2,605	281	2,632	95	2,359
6-11 years	868	3,138	59	2,891	252	3,093	77	2,830	239	3,320	111	3,091	344	3,059	85	2,790
12-15 years	338	4,018	150	3,654	98	3,974	183	3,690	95	3,569	226	3,287	129	3,853	262	3,204
16-19 years	368	4,783	180	4,451	112	4,949	241	4,670	103	4,933	300	4,300	139	3,750	207	3,225
20-29 years	844	4,659	120	4,126	216	4,780	170	4,287	245	4,801	257	4,151	349	3,924	133	3,429
30-39 years	735	4,445	115	3,983	271	4,520	135	4,104	213	4,145	210	3,540	225	3,792	146	3,485
40-49 years	626	3,960	106	3,732	243	3,933	119	3,764	178	4,039	200	3,625	181	3,673	156	3,366
50-59 years	473	3,640	114	3,278	251	3,713	114	3,355	105	3,041	204	2,674	96	3,465	209	3,221
60-69 years	546	3,409	102	3,140	247	3,429	104	3,205	141	2,879	200	2,490	152	3,138	144	2,828
70-79 years	444	3,142	98	2,973	285	3,192	89	2,987	93	2,604	188	2,422	60	3,098	254	2,712
80 years and over	296	2,861	114	2,728	250	2,912	90	2,767	21	*2,087	*	*1,739	19	*2,639	*	*2,429
Female																
All ages ²	7,479	2,756	36	2,488	2,893	2,721	42	2,484	1,980	2,847	41	2,558	2,348	2,652	48	2,387
2-11 months ²	432	524	31	312	232	527	32	317	84	458	52	267	74	547	73	304
1-2 years ²	630	1,838	45	1,757	222	1,810	56	1,758	173	2,050	85	1,779	216	1,950	75	1,825
3-5 years	803	2,383	48	2,230	206	2,299	67	2,147	244	2,807	87	2,616	328	2,318	67	2,132
6-11 years	877	2,852	58	2,608	259	2,795	81	2,562	213	3,123	101	2,872	383	2,783	80	2,522
12-15 years	373	2,927	100	2,615	123	2,790	123	2,582	96	3,553	203	2,964	140	2,765	138	2,549
16-19 years	397	3,097	120	2,563	133	2,967	156	2,465	114	3,320	171	3,069	131	2,937	179	2,533
20-29 years	838	3,002	66	2,759	244	2,996	94	2,772	254	3,277	103	2,956	317	2,863	102	2,497
30-39 years	791	2,977	72	2,657	279	2,980	91	2,657	241	2,907	106	2,671	247	2,820	109	2,629
40-49 years	602	2,919	91	2,640	224	2,835	89	2,672	160	2,672	99	2,540	185	2,755	132	2,475
50-59 years	456	2,575	76	2,382	221	2,553	79	2,378	125	2,563	107	2,368	100	2,704	179	2,470
60-69 years	560	2,578	74	2,379	246	2,634	88	2,427	148	2,221	102	2,090	153	2,076	112	1,801
70-79 years	407	2,411	79	2,233	253	2,379	71	2,246	93	2,200	139	1,894	51	2,013	212	1,812
80 years and over	313	2,248	75	2,172	251	2,274	65	2,182	35	2,008	181	1,854	23	*2,051	*	*2,008

¹Includes data for race-ethnic groups not shown separately.

²Excludes nursing infants and children.

Table 8. Zinc Intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	11.39	0.14	9.36	5,780	11.53	0.17	9.50	3,883	10.56	0.18	8.65	4,598	11.46	0.27	9.18
2-11 months ²	871	6.02	0.11	5.72	473	5.90	0.11	5.57	162	6.15	0.21	6.08	163	6.37	0.21	5.99
1-2 years ²	1,231	6.67	0.12	6.04	424	6.58	0.14	6.10	355	7.03	0.23	6.30	402	7.05	0.30	5.75
3-5 years	1,547	8.04	0.15	7.20	425	7.84	0.22	6.89	454	8.62	0.23	7.76	609	8.19	0.21	7.42
6-11 years	1,745	9.98	0.32	8.59	511	9.97	0.54	8.28	452	9.73	0.27	8.66	727	9.93	0.24	8.67
12-15 years	711	12.26	0.90	9.76	221	12.70	1.49	10.03	191	10.39	0.53	8.66	269	11.40	0.58	9.29
16-19 years	765	12.95	0.90	10.76	245	12.69	0.56	10.90	217	13.65	2.08	10.45	270	15.62	3.42	10.54
20-29 years	1,682	12.40	0.27	10.68	460	12.20	0.39	10.63	499	12.78	0.49	10.68	666	13.00	0.37	11.10
30-39 years	1,526	12.77	0.36	10.69	550	13.15	0.49	10.92	454	11.05	0.54	8.87	472	12.75	0.44	10.25
40-49 years	1,228	11.58	0.27	10.04	467	11.74	0.35	10.43	338	10.39	0.43	8.52	366	11.99	0.47	9.98
50-59 years	929	11.84	0.65	9.50	472	12.33	0.79	9.72	230	9.25	0.42	7.68	196	10.42	0.56	8.82
60-69 years	1,106	11.24	0.36	9.28	493	11.52	0.44	9.40	289	8.98	0.40	7.59	305	9.40	0.37	7.61
70-79 years	851	10.11	0.40	8.50	538	10.24	0.40	8.67	186	9.19	0.70	6.88	111	8.86	0.69	7.14
80 years and over	609	8.82	0.32	7.58	501	8.89	0.28	7.65	56	8.01	0.91	6.63	42	6.94	0.60	6.28
Male																
All ages ²	7,322	13.63	0.23	11.42	2,887	13.94	0.28	11.66	1,903	12.39	0.35	9.83	2,250	13.34	0.51	10.86
2-11 months ²	439	6.16	0.15	5.87	241	6.04	0.16	5.59	78	6.33	0.31	6.28	89	6.56	0.31	6.32
1-2 years ²	601	6.96	0.16	6.57	202	6.86	0.18	6.67	182	7.47	0.34	6.74	186	7.16	0.41	5.81
3-5 years	744	8.43	0.20	7.53	219	8.32	0.31	7.28	210	8.62	0.30	8.13	281	8.72	0.33	7.80
6-11 years	868	10.40	0.24	9.25	252	10.32	0.36	9.02	239	10.40	0.40	9.17	344	10.55	0.35	9.27
12-15 years	338	14.86	1.57	11.42	98	16.03	2.78	11.62	95	10.47	0.71	8.91	129	13.13	0.88	10.48
16-19 years	368	16.24	1.60	13.22	112	15.79	0.77	13.43	103	17.47	4.32	12.28	139	*20.35	*	*12.04
20-29 years	844	15.19	0.38	13.12	216	15.22	0.59	13.14	245	15.76	0.81	12.90	349	14.99	0.50	13.27
30-39 years	735	15.96	0.59	13.32	271	16.63	0.81	13.88	213	13.73	1.07	10.77	225	14.82	0.62	13.19
40-49 years	626	13.84	0.39	12.21	243	13.95	0.50	12.25	178	12.91	0.73	10.55	181	14.65	0.73	12.35
50-59 years	473	14.45	0.96	11.55	251	15.27	1.15	12.27	105	10.10	0.70	8.40	96	11.87	0.82	9.73
60-69 years	546	13.09	0.52	11.26	247	13.38	0.65	11.52	141	10.45	0.67	8.77	152	10.64	0.54	8.71
70-79 years	444	12.05	0.66	10.03	285	12.24	0.68	10.34	93	10.73	1.29	7.84	60	9.99	0.95	8.13
80 years and over	296	10.72	0.49	8.87	250	10.89	0.43	9.06	21	*8.09	*	*7.04	19	*8.81	*	*7.74
Female																
All ages ²	7,479	9.26	0.14	7.91	2,893	9.27	0.18	7.93	1,980	8.96	0.14	7.66	2,348	9.49	0.15	7.88
2-11 months ²	432	5.87	0.13	5.68	232	5.75	0.13	5.55	84	5.99	0.26	5.80	74	6.15	0.25	5.89
1-2 years ²	630	6.37	0.16	5.71	222	6.31	0.20	5.65	173	6.52	0.27	5.69	216	6.93	0.40	5.72
3-5 years	803	7.64	0.18	6.76	206	7.34	0.29	6.48	244	8.62	0.32	7.47	328	7.66	0.24	6.79
6-11 years	877	9.54	0.57	7.86	259	9.61	0.99	7.70	213	9.05	0.33	8.12	383	9.32	0.29	8.07
12-15 years	373	9.52	0.52	8.16	123	9.24	0.77	8.07	96	10.32	0.74	8.53	140	9.80	0.66	8.65
16-19 years	397	9.59	0.43	8.47	133	9.44	0.63	8.38	114	10.01	0.56	9.37	131	10.24	0.65	8.62
20-29 years	838	9.67	0.28	8.45	244	9.41	0.37	8.41	254	10.24	0.49	8.86	317	10.58	0.46	8.80
30-39 years	791	9.64	0.26	8.62	279	9.74	0.35	8.78	241	8.81	0.36	7.55	247	10.56	0.54	8.39
40-49 years	602	9.42	0.28	8.35	224	9.51	0.37	8.55	160	8.27	0.39	7.16	185	9.25	0.42	7.80
50-59 years	456	9.49	0.73	7.87	221	9.67	0.93	7.94	125	8.61	0.47	7.01	100	9.09	0.67	8.13
60-69 years	560	9.66	0.40	7.70	246	9.88	0.52	7.71	148	7.87	0.42	6.93	153	8.38	0.47	6.80
70-79 years	407	8.72	0.36	7.18	253	8.79	0.37	7.18	93	8.07	0.63	6.37	51	7.90	0.91	6.42
80 years and over	313	7.82	0.37	6.58	251	7.83	0.33	6.59	35	7.97	1.17	5.92	23	*5.91	*	*5.26

¹Includes data for race-ethnic groups not shown separately.²Excludes nursing infants and children.

NOTE: Estimates of zinc intake are very skewed; means and standard errors of the means should be used and interpreted with caution.

Table 9. Vitamin A intake in international units (IU) by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
	Both sexes															
All ages ²	14,801	6,143	131	3,590	5,780	6,289	174	3,742	3,883	5,166	159	2,767	4,598	5,672	213	3,370
2-11 months ²	871	5,112	258	3,204	473	5,399	285	3,275	162	4,050	331	3,057	163	4,710	447	2,960
1-2 years ²	1,231	3,702	164	2,698	424	3,791	222	2,728	355	3,442	202	2,575	402	3,722	304	2,659
3-5 years	1,547	4,275	174	3,090	425	4,385	277	3,143	454	3,864	193	2,801	609	4,504	237	3,102
6-11 years	1,745	4,645	196	3,300	511	4,595	283	3,318	452	4,309	272	3,013	727	4,722	242	3,237
12-15 years	711	5,068	469	3,201	221	4,938	666	3,223	191	4,435	515	2,787	269	5,508	699	3,151
16-19 years	765	5,070	432	3,203	245	5,438	671	3,338	217	3,933	312	2,764	270	4,850	422	3,341
20-29 years	1,682	5,613	288	3,349	460	5,527	390	3,365	499	5,458	594	2,692	666	6,079	346	3,486
30-39 years	1,526	6,903	397	3,949	550	7,102	539	4,123	454	4,964	416	2,404	472	6,888	589	4,061
40-49 years	1,228	6,668	401	3,502	467	6,749	520	3,587	338	5,637	504	2,987	366	6,164	488	3,642
50-59 years	929	6,526	414	3,792	472	6,648	452	3,934	230	6,843	754	2,920	196	5,736	697	3,396
60-69 years	1,106	7,868	456	4,517	493	7,846	473	4,753	289	6,395	784	2,742	305	5,753	507	3,167
70-79 years	851	7,919	474	4,825	538	7,982	469	4,907	186	7,516	721	4,163	111	8,080	1,495	4,036
80 years and over	609	7,199	593	4,311	501	7,237	508	4,377	56	6,577	1,721	2,547	42	*5,190	*	*2,950
Male																
All ages ²	7,322	6,736	203	3,942	2,887	6,949	272	4,144	1,903	5,466	240	2,981	2,250	6,085	301	3,780
2-11 months ²	439	5,362	365	3,338	241	5,933	414	3,650	78	3,774	484	2,806	89	4,949	594	3,348
1-2 years ²	601	3,820	239	2,740	202	3,883	346	2,714	182	3,716	252	2,745	186	3,691	367	2,553
3-5 years	744	4,524	273	3,193	219	4,654	433	3,301	210	3,810	256	2,833	281	4,796	317	3,513
6-11 years	868	4,844	239	3,568	252	4,890	352	3,603	239	4,520	311	3,142	344	5,092	322	3,452
12-15 years	338	6,069	781	3,804	98	6,402	1,261	4,033	95	4,608	640	2,813	129	6,413	1,145	3,717
16-19 years	368	4,962	381	3,501	112	4,928	487	3,622	103	4,419	476	3,132	139	5,394	567	3,900
20-29 years	844	6,623	464	3,973	216	6,598	671	4,131	245	6,986	970	3,154	349	6,592	462	3,924
30-39 years	735	7,782	630	4,345	271	8,055	856	4,466	213	5,412	660	2,618	225	6,876	658	4,380
40-49 years	626	7,788	635	4,241	243	7,949	834	4,376	178	6,498	778	3,353	181	6,595	565	4,591
50-59 years	473	7,047	505	4,250	251	7,443	551	4,363	105	5,800	820	3,013	96	6,234	912	3,730
60-69 years	546	8,306	687	4,685	247	8,108	703	4,794	141	5,751	795	2,767	152	7,025	836	3,684
70-79 years	444	8,104	723	4,508	285	8,206	722	4,581	93	7,156	998	3,439	60	8,293	1,840	4,017
80 years and over	296	7,331	859	4,312	250	7,363	750	4,417	21	*4,268	*	*2,434	19	*6,631	*	*3,232
Female																
All ages ²	7,479	5,582	166	3,269	2,893	5,670	218	3,376	1,980	4,905	212	2,559	2,348	5,241	301	3,093
2-11 months ²	432	4,850	327	3,069	232	4,797	344	2,957	84	4,290	417	3,216	74	4,434	551	2,733
1-2 years ²	630	3,575	200	2,621	222	3,698	252	2,730	173	3,126	296	2,272	216	3,756	418	2,788
3-5 years	803	4,017	191	2,903	206	4,106	301	2,950	244	3,918	269	2,748	328	4,211	298	2,794
6-11 years	877	4,439	284	3,094	259	4,298	406	3,068	213	4,094	430	2,812	383	4,351	303	3,134
12-15 years	373	4,014	442	2,679	123	3,418	395	2,376	96	4,257	760	2,766	140	4,670	625	2,783
16-19 years	397	5,179	713	2,717	133	5,972	1,136	2,789	114	3,471	363	2,397	131	4,232	513	2,503
20-29 years	838	4,626	291	2,968	244	4,537	362	2,974	254	4,161	615	2,097	317	5,454	422	3,250
30-39 years	791	6,044	431	3,360	279	6,166	583	3,627	241	4,591	473	2,203	247	6,901	852	3,657
40-49 years	602	5,594	423	3,080	224	5,534	520	3,087	160	4,915	570	2,506	185	5,722	691	2,908
50-59 years	456	6,055	598	3,510	221	5,930	657	3,607	125	7,630	1,138	2,863	100	5,278	891	3,127
60-69 years	560	7,495	545	4,430	246	7,613	576	4,684	148	6,882	1,239	2,674	153	4,705	440	2,803
70-79 years	407	7,786	568	4,928	253	7,819	558	5,077	93	7,779	969	4,432	51	7,898	2,038	3,859
80 years and over	313	7,129	756	4,233	251	7,170	645	4,366	35	*7,634	*	*2,556	23	*4,394	*	*2,601

¹Includes data for race-ethnic groups not shown separately. ²Excludes nursing infants and children.
NOTE: Estimates of vitamin A are very skewed; means and standard errors of the means should be used and interpreted with caution.

Table 10. Vitamin A intake in retinol equivalents (RE) by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	997	20	680	5,780	1,031	28	715	3,883	870	30	515	4,598	870	31	591
2-11 months ²	871	922	27	789	473	945	30	801	162	834	38	742	163	893	50	776
1-2 years ²	1,231	687	22	576	424	710	28	594	355	626	30	506	402	700	53	542
3-5 years	1,547	802	24	643	425	837	38	672	454	718	35	553	609	791	30	633
6-11 years	1,745	878	26	707	511	899	38	734	452	785	48	623	727	846	33	639
12-15 years	711	991	102	638	221	1,019	161	659	191	816	119	526	269	955	130	591
16-19 years	765	888	51	632	245	959	78	706	217	705	57	521	270	810	69	547
20-29 years	1,682	905	45	616	460	892	48	632	499	984	134	494	666	857	49	575
30-39 years	1,526	1,075	58	675	550	1,123	79	720	454	830	85	423	472	984	95	597
40-49 years	1,228	1,026	68	649	467	1,064	93	688	338	897	106	502	366	817	67	546
50-59 years	929	1,006	58	677	472	1,038	65	714	230	980	121	473	196	781	75	544
60-69 years	1,106	1,193	55	815	493	1,203	61	867	289	940	104	471	305	920	93	523
70-79 years	851	1,225	66	882	538	1,241	65	914	186	1,128	113	658	111	1,321	331	598
80 years and over	609	1,126	76	768	501	1,130	63	779	56	1,162	343	455	42	*675	*	*480
Male																
All ages ²	7,322	1,115	34	747	2,887	1,167	48	784	1,903	947	46	563	2,250	936	46	650
2-11 months ²	439	950	38	810	241	1,007	45	897	78	801	54	705	89	922	67	794
1-2 years ²	601	700	32	573	202	710	42	578	182	675	42	516	186	743	88	543
3-5 years	744	860	36	679	219	907	58	707	210	728	48	565	281	850	41	725
6-11 years	868	931	37	747	252	962	53	782	239	879	74	693	344	926	47	697
12-15 years	338	1,231	180	736	98	1,349	315	846	95	839	106	552	129	1,147	233	698
16-19 years	368	959	61	742	112	992	85	774	103	833	96	553	139	931	101	666
20-29 years	844	1,026	65	712	216	1,031	77	740	245	1,175	195	558	349	924	70	617
30-39 years	735	1,245	97	745	271	1,313	136	780	213	960	143	489	225	959	115	645
40-49 years	626	1,231	118	753	243	1,285	164	771	178	1,059	181	605	181	871	86	605
50-59 years	473	1,085	63	738	251	1,151	69	797	105	866	139	449	96	856	107	587
60-69 years	546	1,306	83	880	247	1,301	94	914	141	914	114	551	152	1,171	161	613
70-79 years	444	1,322	101	892	285	1,348	104	916	93	1,166	176	543	60	1,167	315	583
80 years and over	296	1,207	114	837	250	1,237	106	851	21	*693	*	*455	19	*787	*	*395
Female																
All ages ²	7,479	884	23	612	2,893	903	29	643	1,980	803	38	479	2,348	802	40	538
2-11 months ²	432	892	33	781	232	875	36	767	84	862	51	783	74	859	66	728
1-2 years ²	630	674	25	581	222	711	35	602	173	570	38	486	216	652	47	535
3-5 years	803	742	26	606	206	764	42	626	244	708	48	536	328	731	39	578
6-11 years	877	823	33	664	259	835	50	693	213	690	51	548	383	766	40	610
12-15 years	373	738	73	518	123	676	68	501	96	793	215	512	140	778	83	470
16-19 years	397	816	74	518	133	925	121	587	114	583	52	477	131	672	76	434
20-29 years	838	786	54	550	244	765	55	566	254	823	173	429	317	775	55	509
30-39 years	791	909	52	600	279	936	68	626	241	722	90	362	247	1,010	140	565
40-49 years	602	829	48	567	224	841	60	592	160	761	91	444	185	761	91	462
50-59 years	456	934	89	610	221	936	104	636	125	1,066	187	509	100	712	90	441
60-69 years	560	1,097	65	778	246	1,116	72	816	148	959	165	431	153	714	72	435
70-79 years	407	1,155	77	881	253	1,163	75	903	93	1,101	137	710	51	*1,453	*	*577
80 years and over	313	1,083	93	734	251	1,073	72	754	35	*1,376	*	*451	23	*613	*	*480

¹Includes data for race-ethnic groups not shown separately. ²Excludes nursing infants and children.
 NOTE: Estimates of vitamin A are very skewed; means and standard errors of the means should be used and interpreted with caution.

Table 11. Carotenes intake in retinol equivalents (RE) by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14801	452	12	173	5780	448	15	174	3883	359	14	140	4598	582	38	191
2-11 months ²	871	348	27	126	473	383	30	155	162	217	35	55	163	286	48	62
1-2 years ²	1231	222	16	96	424	225	22	94	355	210	19	114	402	220	26	114
3-5 years	1547	258	17	114	425	253	26	110	454	236	19	129	609	345	31	136
6-11 years	1745	279	19	121	511	258	27	116	452	267	24	130	727	363	30	145
12-15 years	711	290	32	130	221	251	38	121	191	270	35	126	269	460	77	152
16-19 years	765	353	46	136	245	358	67	134	217	285	50	134	270	529	83	168
20-29 years	1682	430	28	164	460	404	37	162	499	359	44	150	666	701	66	233
30-39 years	1526	532	38	232	550	526	50	237	454	340	33	121	472	795	94	274
40-49 years	1228	522	36	203	467	507	45	188	338	420	41	162	366	786	86	305
50-59 years	929	495	38	229	472	493	42	232	230	545	65	184	196	583	96	203
60-69 years	1106	606	44	249	493	597	45	262	289	500	77	150	305	501	60	229
70-79 years	851	593	44	278	538	590	44	277	186	568	67	222	111	624	126	265
80 years and over	609	534	56	216	501	535	50	219	56	405	108	125	42	*638	*	*151
Male																
All ages ²	7322	487	19	189	2887	483	23	193	1903	368	21	150	2250	638	59	212
2-11 months ²	439	375	37	154	241	438	43	202	78	192	48	47	89	306	61	91
1-2 years ²	601	234	22	104	202	241	35	95	182	227	22	137	186	190	21	105
3-5 years	744	270	26	117	219	263	42	113	210	230	27	131	281	360	39	148
6-11 years	868	283	22	132	252	272	32	127	239	252	19	139	344	380	41	157
12-15 years	338	323	46	151	98	310	65	145	95	286	55	109	129	517	114	172
16-19 years	368	307	39	147	112	272	42	141	103	274	39	152	139	582	105	193
20-29 years	844	534	47	204	216	500	65	188	245	501	78	185	349	793	97	253
30-39 years	735	584	57	249	271	582	76	256	213	342	47	128	225	819	120	304
40-49 years	626	595	52	225	243	582	66	216	178	487	57	185	181	871	123	434
50-59 years	473	534	47	250	251	553	52	256	105	454	67	250	96	661	135	208
60-69 years	546	622	65	243	247	592	66	245	141	421	76	109	152	634	102	243
70-79 years	444	566	65	218	285	570	66	217	93	495	80	199	60	686	159	310
80 years and over	296	513	80	198	250	500	70	203	21	*297	*	*96	19	*841	*	*170
Female																
All ages ²	7479	419	16	160	2893	415	20	162	1980	350	20	132	2348	523	47	171
2-11 months ²	432	319	34	104	232	320	36	118	84	239	43	71	74	262	63	39
1-2 years ²	630	209	19	89	222	209	24	89	173	191	29	86	216	252	43	129
3-5 years	803	245	19	109	206	242	27	106	244	242	23	124	328	330	40	119
6-11 years	877	275	29	105	259	244	40	100	213	283	42	120	383	346	37	130
12-15 years	373	255	40	119	123	191	34	99	96	254	34	148	140	408	84	142
16-19 years	397	400	77	126	133	448	113	128	114	296	82	120	131	470	109	140
20-29 years	838	328	25	151	244	314	32	153	254	238	26	100	317	590	61	215
30-39 years	791	481	45	193	279	471	58	184	241	338	38	114	247	769	121	258
40-49 years	602	452	42	180	224	431	51	173	160	363	49	159	185	698	95	210
50-59 years	456	459	55	204	221	439	60	209	125	614	95	163	100	511	110	193
60-69 years	560	592	53	261	246	601	55	275	148	560	117	190	153	391	43	224
70-79 years	407	613	55	311	253	605	53	312	93	621	92	255	51	572	165	198
80 years and over	313	546	72	224	251	554	64	226	35	*454	*	*129	23	*526	*	*146

¹Includes data for race-ethnic groups not shown separately. ²Excludes nursing infants and children.
 NOTE: Estimates of carotenes intake are very skewed; means and standard errors of the means should be used and interpreted with caution.

Table 12. Thiamin intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	1.63	0.02	1.43	5,780	1.63	0.02	1.43	3,883	1.56	0.02	1.37	4,598	1.56	0.03	1.37
2-11 months ²	871	1.19	0.03	1.06	473	1.15	0.03	1.04	162	1.35	0.06	1.20	163	1.17	0.07	1.05
1-2 years ²	1,231	1.08	0.02	1.02	424	1.06	0.02	1.02	355	1.19	0.03	1.11	402	1.08	0.04	0.96
3-5 years	1,547	1.38	0.02	1.26	425	1.36	0.03	1.24	454	1.45	0.03	1.37	609	1.34	0.03	1.19
6-11 years	1,745	1.56	0.03	1.44	511	1.55	0.04	1.43	452	1.58	0.04	1.45	727	1.57	0.04	1.42
12-15 years	711	1.82	0.11	1.55	221	1.83	0.17	1.54	191	1.64	0.07	1.49	269	1.72	0.10	1.46
16-19 years	765	1.87	0.07	1.56	245	1.87	0.09	1.52	217	1.88	0.10	1.53	270	1.64	0.08	1.47
20-29 years	1,682	1.76	0.04	1.55	460	1.74	0.06	1.54	499	1.78	0.06	1.53	666	1.69	0.05	1.47
30-39 years	1,526	1.71	0.04	1.53	550	1.73	0.05	1.57	454	1.55	0.05	1.37	472	1.67	0.06	1.41
40-49 years	1,228	1.61	0.04	1.46	467	1.61	0.05	1.47	338	1.47	0.05	1.31	366	1.55	0.05	1.39
50-59 years	929	1.55	0.04	1.37	472	1.56	0.05	1.35	230	1.38	0.05	1.26	196	1.51	0.07	1.34
60-69 years	1,106	1.60	0.04	1.39	493	1.63	0.05	1.41	289	1.33	0.05	1.15	305	1.30	0.05	1.15
70-79 years	851	1.47	0.04	1.33	538	1.48	0.04	1.36	186	1.32	0.08	1.06	111	1.29	0.09	1.00
80 years and over	609	1.42	0.05	1.27	501	1.43	0.04	1.27	56	1.34	0.12	1.15	42	*1.12	*	*0.97
Male																
All ages ²	7,322	1.91	0.03	1.68	2,887	1.93	0.04	1.70	1,903	1.78	0.03	1.54	2,250	1.77	0.05	1.55
2-11 months ²	439	1.20	0.05	1.05	241	1.18	0.05	1.04	78	1.33	0.08	1.20	89	1.11	0.07	1.01
1-2 years ²	601	1.12	0.03	1.08	202	1.08	0.03	1.06	182	1.27	0.05	1.21	186	1.09	0.05	0.95
3-5 years	744	1.45	0.04	1.28	219	1.44	0.05	1.26	210	1.47	0.05	1.37	281	1.47	0.05	1.38
6-11 years	868	1.67	0.04	1.59	252	1.67	0.05	1.59	239	1.67	0.05	1.51	344	1.68	0.05	1.54
12-15 years	338	2.31	0.20	1.90	98	2.40	0.32	1.90	95	1.74	0.10	1.58	129	2.10	0.16	1.74
16-19 years	368	2.28	0.10	2.08	112	2.35	0.14	2.22	103	2.21	0.16	1.80	139	1.84	0.11	1.64
20-29 years	844	2.11	0.06	1.85	216	2.11	0.09	1.88	245	2.13	0.11	1.85	349	1.93	0.07	1.72
30-39 years	735	2.06	0.06	1.80	271	2.10	0.07	1.85	213	1.89	0.09	1.68	225	1.89	0.09	1.68
40-49 years	626	1.91	0.06	1.69	243	1.90	0.07	1.68	178	1.79	0.09	1.52	181	1.76	0.07	1.56
50-59 years	473	1.84	0.07	1.66	251	1.89	0.07	1.68	105	1.52	0.09	1.41	96	1.74	0.11	1.46
60-69 years	546	1.81	0.06	1.62	247	1.83	0.07	1.66	141	1.52	0.09	1.30	152	1.55	0.08	1.45
70-79 years	444	1.69	0.06	1.58	285	1.72	0.05	1.61	93	1.43	0.14	1.19	60	1.51	0.14	1.33
80 years and over	296	1.65	0.07	1.48	250	1.67	0.06	1.50	21	*1.41	*	*1.10	19	*1.39	*	*1.35
Female																
All ages ²	7,479	1.36	0.02	1.22	2,893	1.35	0.02	1.22	1,980	1.36	0.02	1.23	2,348	1.35	0.04	1.19
2-11 months ²	432	1.17	0.04	1.08	232	1.12	0.04	1.04	84	1.36	0.09	1.20	74	1.24	0.11	1.17
1-2 years ²	630	1.05	0.02	0.96	222	1.05	0.03	0.94	173	1.10	0.04	0.98	216	1.06	0.05	0.98
3-5 years	803	1.31	0.02	1.23	206	1.28	0.04	1.23	244	1.43	0.05	1.36	328	1.21	0.04	1.08
6-11 years	877	1.45	0.03	1.34	259	1.43	0.04	1.30	213	1.50	0.05	1.42	383	1.46	0.04	1.29
12-15 years	373	1.31	0.05	1.21	123	1.24	0.06	1.19	96	1.55	0.10	1.32	140	1.37	0.09	1.18
16-19 years	397	1.46	0.06	1.20	133	1.37	0.08	1.16	114	1.57	0.09	1.30	131	1.41	0.09	1.18
20-29 years	838	1.43	0.04	1.29	244	1.40	0.05	1.28	254	1.48	0.05	1.34	317	1.39	0.05	1.24
30-39 years	791	1.37	0.04	1.23	279	1.37	0.05	1.23	241	1.27	0.05	1.16	247	1.45	0.07	1.25
40-49 years	602	1.33	0.04	1.22	224	1.32	0.05	1.21	160	1.20	0.04	1.15	185	1.33	0.07	1.12
50-59 years	456	1.28	0.04	1.18	221	1.27	0.05	1.15	125	1.28	0.05	1.22	100	1.30	0.07	1.24
60-69 years	560	1.42	0.05	1.22	246	1.46	0.07	1.26	148	1.18	0.05	1.06	153	1.10	0.06	0.95
70-79 years	407	1.31	0.04	1.18	253	1.31	0.04	1.19	93	1.24	0.07	1.03	51	1.11	0.11	0.93
80 years and over	313	1.30	0.05	1.15	251	1.30	0.05	1.15	35	1.31	0.15	1.16	23	*0.96	*	*0.90

¹Includes data for race-ethnic groups not shown separately.

²Excludes nursing infants and children.

Table 13. Riboflavin intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	1.97	0.02	1.75	5,780	2.03	0.03	1.81	3,883	1.75	0.02	1.53	4,598	1.93	0.04	1.72
2-11 months ²	871	1.68	0.04	1.61	473	1.68	0.03	1.61	162	1.70	0.06	1.61	163	1.73	0.08	1.67
1-2 years ²	1,231	1.62	0.03	1.55	424	1.63	0.03	1.56	355	1.55	0.04	1.51	402	1.71	0.06	1.52
3-5 years	1,547	1.81	0.03	1.70	425	1.83	0.04	1.67	454	1.73	0.04	1.67	609	1.86	0.05	1.72
6-11 years	1,745	2.03	0.03	1.92	511	2.07	0.04	1.95	452	1.85	0.05	1.73	727	2.08	0.05	1.94
12-15 years	711	2.24	0.13	1.92	221	2.32	0.19	2.01	191	1.88	0.08	1.61	269	2.17	0.13	1.87
16-19 years	765	2.25	0.08	1.91	245	2.36	0.10	2.01	217	2.12	0.11	1.75	270	2.02	0.11	1.77
20-29 years	1,682	2.07	0.04	1.82	460	2.12	0.06	1.86	499	1.94	0.07	1.66	666	1.98	0.06	1.72
30-39 years	1,526	2.05	0.05	1.83	550	2.14	0.06	1.90	454	1.70	0.06	1.45	472	1.99	0.08	1.72
40-49 years	1,228	1.87	0.04	1.69	467	1.94	0.05	1.75	338	1.62	0.06	1.46	366	1.82	0.06	1.62
50-59 years	929	1.84	0.05	1.66	472	1.90	0.05	1.73	230	1.47	0.06	1.27	196	1.72	0.08	1.58
60-69 years	1,106	1.94	0.05	1.70	493	2.00	0.06	1.76	289	1.48	0.06	1.27	305	1.62	0.07	1.48
70-79 years	851	1.78	0.05	1.60	538	1.82	0.04	1.64	186	1.56	0.09	1.34	111	1.55	0.11	1.34
80 years and over	609	1.71	0.06	1.52	501	1.74	0.05	1.55	56	1.55	0.15	1.26	42	*1.37	*	*1.30
Male																
All ages ²	7,322	2.30	0.04	2.05	2,887	2.38	0.04	2.13	1,903	2.01	0.03	1.74	2,250	2.17	0.06	1.97
2-11 months ²	439	1.71	0.05	1.64	241	1.73	0.05	1.65	78	1.69	0.09	1.61	89	1.75	0.09	1.70
1-2 years ²	601	1.66	0.04	1.60	202	1.65	0.05	1.60	182	1.60	0.06	1.60	186	1.75	0.07	1.53
3-5 years	744	1.91	0.05	1.76	219	1.96	0.07	1.77	210	1.76	0.05	1.70	281	1.98	0.07	1.88
6-11 years	868	2.16	0.05	2.03	252	2.22	0.06	2.07	239	1.97	0.06	1.85	344	2.22	0.07	2.10
12-15 years	338	2.77	0.24	2.45	98	2.95	0.38	2.53	95	2.04	0.11	1.80	129	2.62	0.21	2.21
16-19 years	368	2.77	0.12	2.46	112	2.94	0.16	2.67	103	2.50	0.16	2.17	139	2.35	0.15	2.12
20-29 years	844	2.45	0.06	2.23	216	2.56	0.09	2.31	245	2.33	0.10	2.08	349	2.25	0.08	2.02
30-39 years	735	2.47	0.08	2.21	271	2.60	0.10	2.35	213	2.05	0.09	1.67	225	2.22	0.10	2.08
40-49 years	626	2.17	0.06	1.98	243	2.23	0.08	2.03	178	1.98	0.09	1.77	181	2.09	0.08	1.96
50-59 years	473	2.17	0.08	1.95	251	2.28	0.08	2.02	105	1.55	0.09	1.30	96	1.94	0.12	1.74
60-69 years	546	2.21	0.08	1.99	247	2.26	0.09	2.04	141	1.74	0.08	1.54	152	1.90	0.10	1.68
70-79 years	444	2.06	0.07	1.86	285	2.11	0.07	1.90	93	1.73	0.15	1.42	60	1.67	0.13	1.53
80 years and over	296	1.95	0.09	1.77	250	1.99	0.07	1.78	21	*1.63	*	*1.46	19	*1.51	*	*1.48
Female																
All ages ²	7,479	1.67	0.02	1.51	2,893	1.69	0.03	1.55	1,980	1.53	0.03	1.36	2,348	1.68	0.05	1.49
2-11 months ²	432	1.64	0.04	1.57	232	1.62	0.04	1.57	84	1.71	0.09	1.61	74	1.71	0.13	1.65
1-2 years ²	630	1.58	0.03	1.48	222	1.61	0.04	1.49	173	1.49	0.06	1.41	216	1.67	0.07	1.49
3-5 years	803	1.71	0.03	1.62	206	1.70	0.05	1.58	244	1.70	0.05	1.60	328	1.73	0.06	1.62
6-11 years	877	1.89	0.04	1.76	259	1.91	0.06	1.83	213	1.73	0.06	1.59	383	1.95	0.06	1.80
12-15 years	373	1.68	0.06	1.47	123	1.67	0.08	1.45	96	1.71	0.11	1.45	140	1.76	0.12	1.65
16-19 years	397	1.73	0.07	1.53	133	1.74	0.09	1.55	114	1.75	0.13	1.51	131	1.65	0.12	1.45
20-29 years	838	1.71	0.04	1.53	244	1.72	0.06	1.54	254	1.61	0.07	1.44	317	1.64	0.07	1.48
30-39 years	791	1.64	0.04	1.50	279	1.70	0.05	1.59	241	1.40	0.05	1.23	247	1.74	0.10	1.44
40-49 years	602	1.59	0.04	1.47	224	1.64	0.05	1.50	160	1.32	0.05	1.27	185	1.54	0.08	1.35
50-59 years	456	1.54	0.05	1.42	221	1.56	0.05	1.46	125	1.41	0.07	1.26	100	1.51	0.10	1.36
60-69 years	560	1.71	0.06	1.51	246	1.77	0.07	1.57	148	1.28	0.07	1.12	153	1.40	0.09	1.17
70-79 years	407	1.58	0.05	1.40	253	1.61	0.05	1.41	93	1.43	0.08	1.32	51	*1.45	*	*1.27
80 years and over	313	1.59	0.06	1.40	251	1.60	0.05	1.41	35	1.52	0.20	1.19	23	*1.29	*	*1.22

¹Includes data for race-ethnic groups not shown separately.

²Excludes nursing infants and children.

Table 14. Niacin intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	22.24	0.19	19.38	5,780	22.60	0.23	19.66	3,883	20.96	0.29	18.11	4,598	19.47	0.34	16.60
2-11 months ²	871	12.21	0.34	11.19	473	12.20	0.36	11.20	162	12.96	0.60	11.23	163	11.05	0.57	10.37
1-2 years ²	1,231	12.08	0.27	11.08	424	11.95	0.32	11.13	355	13.49	0.43	12.03	402	11.61	0.48	10.31
3-5 years	1,547	16.00	0.29	14.49	425	15.96	0.42	14.36	454	17.23	0.45	15.35	609	14.86	0.41	13.69
6-11 years	1,745	19.15	0.33	17.37	511	19.20	0.47	17.33	452	19.06	0.46	17.71	727	17.77	0.47	15.97
12-15 years	711	22.48	1.34	18.63	221	22.88	2.11	18.61	191	20.46	0.95	17.73	269	20.54	1.08	16.68
16-19 years	765	24.37	0.85	20.03	245	24.81	1.19	19.31	217	24.76	1.27	21.15	270	20.37	1.04	17.29
20-29 years	1,682	24.96	0.53	21.63	460	25.06	0.77	21.79	499	25.47	0.90	21.47	666	21.47	0.62	19.07
30-39 years	1,526	24.38	0.53	21.69	550	24.89	0.68	21.99	454	22.64	0.74	19.88	472	22.48	0.83	19.24
40-49 years	1,228	23.69	0.51	21.56	467	24.07	0.61	21.87	338	21.68	0.81	18.08	366	20.82	0.75	18.17
50-59 years	929	22.86	0.62	20.51	472	23.54	0.68	20.99	230	18.49	0.71	16.54	196	20.01	0.94	18.21
60-69 years	1,106	21.94	0.56	19.36	493	22.51	0.65	19.94	289	17.40	0.73	15.28	305	16.66	0.75	14.05
70-79 years	851	19.75	0.55	17.87	538	20.04	0.52	18.19	186	17.42	1.02	15.10	111	15.74	1.23	12.69
80 years and over	609	18.51	0.64	16.05	501	18.67	0.54	16.20	56	17.34	1.68	14.50	42	*12.17	*	*12.00
Male																
All ages ²	7,322	26.35	0.31	23.23	2,887	27.00	0.38	23.78	1,903	24.63	0.50	21.03	2,250	22.30	0.53	19.55
2-11 months ²	439	12.57	0.52	11.43	241	12.72	0.56	11.83	78	12.90	0.76	11.35	89	10.97	0.63	10.80
1-2 years ²	601	12.43	0.38	11.29	202	12.17	0.44	11.35	182	14.28	0.59	13.00	186	11.76	0.65	10.52
3-5 years	744	16.89	0.44	14.99	219	16.99	0.62	14.88	210	17.35	0.57	15.33	281	16.25	0.58	15.61
6-11 years	868	20.42	0.48	18.79	252	20.56	0.68	18.97	239	20.37	0.62	18.43	344	19.00	0.69	16.68
12-15 years	338	27.61	2.48	22.91	98	29.00	4.11	23.78	95	21.44	1.23	19.49	129	24.19	1.55	20.34
16-19 years	368	30.29	1.31	26.09	112	31.49	1.84	26.96	103	29.81	1.96	24.37	139	23.22	1.47	19.11
20-29 years	844	30.40	0.83	27.41	216	31.12	1.24	28.64	245	32.36	1.42	26.64	349	24.98	0.84	22.61
30-39 years	735	29.71	0.81	27.36	271	30.40	1.03	28.16	213	28.08	1.12	26.59	225	26.32	1.19	23.59
40-49 years	626	28.31	0.75	25.22	243	28.65	0.89	25.81	178	26.52	1.23	23.38	181	24.50	1.02	23.09
50-59 years	473	27.47	0.94	23.91	251	28.62	1.00	24.69	105	21.10	1.16	18.43	96	22.41	1.32	21.11
60-69 years	546	25.16	0.84	22.92	247	25.59	0.94	23.61	141	20.55	1.12	17.94	152	19.05	1.02	16.54
70-79 years	444	22.47	0.83	19.81	285	22.88	0.76	20.12	93	18.69	1.65	15.62	60	18.20	1.55	15.13
80 years and over	296	21.43	1.03	18.93	250	21.54	0.85	19.35	21	*20.44	*	*15.43	19	*14.14	*	*13.24
Female																
All ages ²	7,479	18.35	0.19	16.52	2,893	18.47	0.23	16.65	1,980	17.75	0.30	16.08	2,348	16.50	0.38	14.33
2-11 months ²	432	11.83	0.36	10.60	232	11.60	0.39	10.47	84	13.01	0.81	10.96	74	11.14	0.92	9.34
1-2 years ²	630	11.70	0.31	10.72	222	11.72	0.41	10.74	173	12.58	0.53	11.19	216	11.44	0.65	10.29
3-5 years	803	15.07	0.31	13.75	206	14.90	0.47	13.62	244	17.11	0.61	15.39	328	13.47	0.49	12.25
6-11 years	877	17.84	0.37	16.11	259	17.84	0.55	16.03	213	17.74	0.58	17.30	383	16.54	0.54	15.33
12-15 years	373	17.08	0.64	15.23	123	16.53	0.86	14.52	96	19.46	1.26	17.29	140	17.16	1.25	14.96
16-19 years	397	18.34	0.72	16.30	133	17.82	1.03	15.01	114	19.96	1.19	16.85	131	17.13	1.16	14.46
20-29 years	838	19.64	0.46	17.64	244	19.47	0.65	17.65	254	19.63	0.74	17.14	317	17.18	0.67	15.25
30-39 years	791	19.18	0.46	16.88	279	19.48	0.64	17.37	241	18.10	0.70	16.84	247	18.42	0.93	15.82
40-49 years	602	19.25	0.46	17.83	224	19.41	0.59	18.05	160	17.62	0.74	16.13	185	17.03	0.87	14.33
50-59 years	456	18.69	0.57	17.14	221	18.95	0.68	17.20	125	16.53	0.70	15.80	100	17.79	1.12	16.66
60-69 years	560	19.20	0.60	17.25	246	19.78	0.76	17.52	148	15.01	0.76	13.98	153	14.70	0.96	12.57
70-79 years	407	17.80	0.58	16.52	253	17.97	0.61	16.57	93	16.49	1.05	14.69	51	13.63	1.70	10.80
80 years and over	313	16.96	0.67	14.66	251	17.14	0.61	14.78	35	15.92	1.83	12.96	23	*11.09	*	*9.98

¹Includes data for race-ethnic groups not shown separately.²Excludes nursing infants and children.

Table 15. Vitamin B₆ Intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	1.77	0.02	1.52	5,780	1.79	0.02	1.53	3,883	1.60	0.03	1.38	4,598	1.71	0.05	1.48
2-11 months ²	871	0.78	0.02	0.71	473	0.79	0.02	0.70	162	0.76	0.03	0.68	163	0.79	0.04	0.72
1-2 years ²	1,231	1.21	0.03	1.08	424	1.20	0.03	1.09	355	1.26	0.04	1.21	402	1.27	0.06	1.11
3-5 years	1,547	1.42	0.03	1.28	425	1.41	0.04	1.25	454	1.47	0.04	1.38	609	1.50	0.05	1.37
6-11 years	1,745	1.58	0.03	1.43	511	1.58	0.04	1.42	452	1.55	0.04	1.35	727	1.60	0.05	1.44
12-15 years	711	1.84	0.13	1.56	221	1.89	0.20	1.59	191	1.56	0.08	1.39	269	1.65	0.11	1.42
16-19 years	765	1.91	0.07	1.59	245	1.92	0.10	1.56	217	1.89	0.10	1.58	270	1.74	0.10	1.52
20-29 years	1,682	1.89	0.04	1.66	460	1.86	0.06	1.66	499	1.87	0.07	1.58	666	1.98	0.07	1.70
30-39 years	1,526	1.88	0.05	1.63	550	1.92	0.06	1.66	454	1.67	0.06	1.47	472	1.89	0.09	1.56
40-49 years	1,228	1.79	0.04	1.56	467	1.82	0.05	1.59	338	1.54	0.06	1.34	366	1.72	0.07	1.59
50-59 years	929	1.79	0.06	1.51	472	1.85	0.06	1.54	230	1.38	0.06	1.21	196	1.71	0.10	1.56
60-69 years	1,106	1.82	0.05	1.57	493	1.87	0.06	1.60	289	1.39	0.06	1.21	305	1.47	0.08	1.25
70-79 years	851	1.73	0.05	1.51	538	1.76	0.05	1.58	186	1.50	0.10	1.22	111	1.46	0.15	1.20
80 years and over	609	1.68	0.07	1.47	501	1.70	0.05	1.50	56	1.52	0.15	1.17	42	*1.07	*	*0.97
Male																
All ages ²	7,322	2.07	0.03	1.80	2,887	2.12	0.04	1.84	1,903	1.87	0.04	1.60	2,250	1.95	0.08	1.74
2-11 months ²	439	0.81	0.03	0.72	241	0.82	0.03	0.73	78	0.76	0.04	0.66	89	0.84	0.05	0.75
1-2 years ²	601	1.22	0.04	1.10	202	1.19	0.05	1.09	182	1.31	0.05	1.24	186	1.29	0.07	1.13
3-5 years	744	1.49	0.04	1.30	219	1.49	0.06	1.26	210	1.49	0.05	1.38	281	1.61	0.06	1.48
6-11 years	868	1.69	0.05	1.55	252	1.71	0.07	1.56	239	1.65	0.06	1.45	344	1.72	0.07	1.58
12-15 years	338	2.29	0.26	1.84	98	2.44	0.41	1.88	95	1.65	0.10	1.56	129	1.91	0.13	1.62
16-19 years	368	2.36	0.12	2.06	112	2.43	0.16	2.08	103	2.25	0.16	1.86	139	1.95	0.12	1.66
20-29 years	844	2.29	0.06	2.04	216	2.30	0.09	2.06	245	2.38	0.10	2.08	349	2.30	0.08	2.01
30-39 years	735	2.27	0.07	1.99	271	2.32	0.09	2.07	213	2.06	0.09	1.87	225	2.16	0.10	1.94
40-49 years	626	2.16	0.07	1.92	243	2.20	0.08	1.96	178	1.92	0.09	1.60	181	2.06	0.08	1.97
50-59 years	473	2.12	0.09	1.84	251	2.22	0.10	1.91	105	1.54	0.09	1.43	96	1.92	0.13	1.79
60-69 years	546	2.05	0.08	1.76	247	2.09	0.09	1.83	141	1.52	0.08	1.33	152	1.68	0.09	1.47
70-79 years	444	1.92	0.08	1.67	285	1.96	0.07	1.71	93	1.65	0.18	1.20	60	1.67	0.17	1.28
80 years and over	296	1.91	0.10	1.71	250	1.93	0.08	1.75	21	*1.72	*	*1.38	19	*1.24	*	*1.14
Female																
All ages ²	7,479	1.47	0.02	1.30	2,893	1.48	0.02	1.31	1,980	1.37	0.03	1.20	2,348	1.47	0.06	1.26
2-11 months ²	432	0.76	0.02	0.70	232	0.74	0.02	0.67	84	0.75	0.04	0.70	74	0.73	0.04	0.65
1-2 years ²	630	1.20	0.03	1.06	222	1.21	0.04	1.08	173	1.20	0.05	1.11	216	1.25	0.08	1.06
3-5 years	803	1.35	0.03	1.26	206	1.32	0.05	1.23	244	1.46	0.05	1.36	328	1.39	0.06	1.27
6-11 years	877	1.47	0.03	1.35	259	1.46	0.05	1.35	213	1.45	0.06	1.30	383	1.49	0.05	1.31
12-15 years	373	1.36	0.06	1.11	123	1.31	0.07	1.10	96	1.47	0.10	1.35	140	1.41	0.11	1.16
16-19 years	397	1.45	0.07	1.14	133	1.40	0.09	1.12	114	1.54	0.10	1.24	131	1.51	0.12	1.31
20-29 years	838	1.50	0.04	1.32	244	1.47	0.06	1.32	254	1.45	0.06	1.20	317	1.58	0.07	1.34
30-39 years	791	1.50	0.04	1.36	279	1.52	0.06	1.39	241	1.34	0.05	1.19	247	1.61	0.10	1.34
40-49 years	602	1.43	0.04	1.29	224	1.44	0.05	1.30	160	1.23	0.05	1.14	185	1.37	0.08	1.16
50-59 years	456	1.48	0.06	1.25	221	1.52	0.07	1.25	125	1.26	0.06	1.10	100	1.52	0.10	1.35
60-69 years	560	1.63	0.06	1.39	246	1.67	0.07	1.44	148	1.29	0.07	1.16	153	1.30	0.09	1.13
70-79 years	407	1.59	0.06	1.35	253	1.62	0.06	1.38	93	1.38	0.08	1.23	51	*1.27	*	*0.98
80 years and over	313	1.55	0.07	1.32	251	1.57	0.06	1.37	35	1.43	0.18	0.98	23	*0.98	*	*0.91

¹Includes data for race-ethnic groups not shown separately.

²Excludes nursing infants and children.

Table 16. Folate intake in micrograms by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	275	4.2	226	5,780	282	5.1	234	3,883	238	3.8	186	4,598	280	8.4	229
2-11 months ²	871	160	4.1	143	473	154	4.2	136	162	170	6.9	157	163	178	9.1	164
1-2 years ²	1,231	182	4.5	164	424	182	5.1	169	355	188	7.3	163	402	197	10.6	161
3-5 years	1,547	227	5.2	203	425	226	7.1	207	454	235	8.5	204	609	253	8.9	217
6-11 years	1,745	257	5.9	229	511	260	8.1	236	452	244	9.4	198	727	275	9.4	235
12-15 years	711	303	26.7	241	221	319	42.4	252	191	227	13.3	189	269	268	17.5	219
16-19 years	765	284	12.3	217	245	289	16.2	229	217	263	18.9	187	270	293	19.5	229
20-29 years	1,682	276	7.1	226	460	273	9.9	222	499	252	11.0	198	666	318	11.5	261
30-39 years	1,526	297	9.2	243	550	309	12.1	254	454	236	11.1	182	472	299	14.2	240
40-49 years	1,228	268	7.9	224	467	276	9.8	232	338	224	12.5	173	366	267	11.9	229
50-59 years	929	277	9.3	231	472	285	10.0	242	230	229	13.6	165	196	274	19.2	220
60-69 years	1,106	303	9.9	249	493	309	11.2	256	289	248	15.2	186	305	261	15.3	214
70-79 years	851	285	9.8	243	538	289	9.1	247	186	244	19.1	187	111	227	19.9	179
80 years and over	609	272	11.9	219	501	275	10.0	224	56	243	28.0	173	42	*204	*	*176
Male																
All ages ²	7,322	317	7.0	266	2,887	327	8.6	274	1,903	271	6.4	213	2,250	318	13.0	265
2-11 months ²	439	160	6.0	142	241	157	6.4	138	78	167	9.2	155	89	176	12.3	146
1-2 years ²	601	183	6.0	164	202	179	6.8	169	182	203	10.7	168	186	194	12.1	160
3-5 years	744	238	8.1	206	219	239	11.0	208	210	234	11.6	203	281	275	12.4	231
6-11 years	868	278	8.7	244	252	284	12.2	253	239	265	13.3	218	344	296	13.0	256
12-15 years	338	382	50.2	299	98	417	84.3	305	95	246	16.8	199	129	313	23.7	254
16-19 years	368	333	19.0	264	112	345	25.9	281	103	309	30.9	212	139	340	25.9	263
20-29 years	844	323	10.6	274	216	322	15.5	277	245	309	18.0	247	349	368	14.9	304
30-39 years	735	359	14.8	307	271	377	19.2	315	213	287	18.8	213	225	333	18.0	299
40-49 years	626	317	12.4	265	243	327	15.1	278	178	274	21.4	211	181	315	15.7	276
50-59 years	473	318	14.7	270	251	330	15.7	274	105	246	21.2	212	96	311	26.4	250
60-69 years	546	331	14.0	295	247	335	16.0	302	141	259	18.8	218	152	327	21.2	268
70-79 years	444	303	14.4	261	285	310	13.1	268	93	257	33.1	187	60	244	21.4	197
80 years and over	296	304	18.9	249	250	310	15.9	261	21	*205	*	*170	19	*261	*	*234
Female																
All ages ²	7,479	236	4.4	195	2,893	239	5.2	200	1,980	209	4.4	163	2,348	240	10.2	201
2-11 months ²	432	160	4.9	143	232	151	5.2	133	84	174	9.5	157	74	179	9.3	182
1-2 years ²	630	182	5.9	164	222	186	7.4	168	173	171	8.6	155	216	200	14.2	162
3-5 years	803	214	5.8	200	206	212	8.2	205	244	236	11.4	204	328	230	9.3	201
6-11 years	877	235	6.9	206	259	236	10.0	210	213	224	11.9	181	383	253	10.0	216
12-15 years	373	220	11.8	181	123	217	15.6	180	96	208	19.0	176	140	227	18.9	182
16-19 years	397	234	12.9	186	133	230	17.1	183	114	219	18.9	150	131	239	20.2	190
20-29 years	838	230	7.8	186	244	227	11.2	183	254	204	10.8	148	317	258	12.0	214
30-39 years	791	237	9.0	188	279	242	12.5	194	241	192	10.3	155	247	262	16.9	208
40-49 years	602	220	7.6	185	224	224	10.2	188	160	182	10.1	154	185	218	12.3	201
50-59 years	456	239	9.5	207	221	244	11.0	216	125	216	16.2	152	100	239	20.3	204
60-69 years	560	279	12.4	225	246	285	15.0	229	148	240	22.0	174	153	207	15.0	173
70-79 years	407	272	12.1	233	253	274	12.2	236	93	234	19.0	185	51	212	27.8	147
80 years and over	313	255	13.9	204	251	256	12.4	205	35	*260	*	*174	23	*173	*	*150

¹Includes data for race-ethnic groups not shown separately.²Excludes nursing infants and children.

Table 17. Vitamin B₁₂ intake in micrograms by age, sex, and race-ethnicity: United States, 1968-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	5.07	0.10	3.59	5,780	5.11	0.12	3.66	3,883	4.86	0.18	3.25	4,598	4.80	0.15	3.56
2-11 months ²	871	3.03	0.07	2.89	473	2.99	0.07	2.88	162	2.98	0.14	2.73	163	3.33	0.14	3.19
1-2 years ²	1,231	3.18	0.08	2.87	424	3.12	0.08	2.87	355	3.17	0.12	2.79	402	3.65	0.25	2.92
3-5 years	1,547	3.70	0.12	3.08	425	3.59	0.13	3.08	454	3.55	0.15	3.00	609	3.61	0.12	3.11
6-11 years	1,745	4.32	0.11	3.51	511	4.36	0.17	3.46	452	4.05	0.21	3.36	727	4.25	0.13	3.55
12-15 years	711	5.46	0.45	3.85	221	5.68	0.68	3.95	191	4.66	0.61	3.30	269	5.14	0.62	3.78
16-19 years	765	5.38	0.31	4.15	245	5.41	0.30	4.24	217	5.60	0.77	3.87	270	5.76	0.82	3.95
20-29 years	1,682	5.31	0.28	3.85	460	5.19	0.41	3.77	499	6.16	0.60	3.96	666	5.34	0.30	3.92
30-39 years	1,526	5.99	0.30	3.87	550	6.19	0.41	4.11	454	5.24	0.44	3.25	472	5.32	0.42	3.72
40-49 years	1,228	5.28	0.34	3.60	467	5.30	0.44	3.73	338	4.97	0.51	3.18	366	4.59	0.30	3.71
50-59 years	929	5.01	0.28	3.55	472	5.17	0.32	3.70	230	4.15	0.51	2.71	196	3.89	0.29	2.94
60-69 years	1,106	5.08	0.24	3.68	493	5.10	0.28	3.74	289	4.41	0.39	2.84	305	4.65	0.43	3.02
70-79 years	851	4.30	0.26	3.04	538	4.29	0.25	3.07	186	4.43	0.48	2.82	111	5.73	1.65	2.33
80 years and over	609	4.30	0.36	2.99	501	4.27	0.30	3.07	56	*4.90	*	*2.19	42	2.74	0.30	2.19
Male																
All ages ²	7,322	6.15	0.16	4.39	2,887	6.32	0.21	4.51	1,903	5.59	0.26	3.80	2,250	5.55	0.24	4.11
2-11 months ²	439	3.09	0.09	2.88	241	3.05	0.10	2.86	78	3.06	0.20	2.79	89	3.44	0.19	3.19
1-2 years ²	601	3.32	0.12	2.97	202	3.22	0.12	2.95	182	3.44	0.19	2.99	186	3.95	0.43	3.08
3-5 years	744	4.02	0.20	3.22	219	3.89	0.19	3.27	210	3.56	0.20	2.98	281	3.62	0.15	3.12
6-11 years	868	4.37	0.14	3.62	252	4.27	0.17	3.50	239	4.68	0.35	3.58	344	4.58	0.20	3.90
12-15 years	338	6.77	0.74	4.72	98	7.24	1.27	4.84	95	4.57	0.51	3.77	129	6.41	1.15	4.23
16-19 years	368	6.80	0.42	5.15	112	6.95	0.46	5.16	103	6.27	0.80	4.96	139	7.25	1.41	4.89
20-29 years	844	6.69	0.45	4.97	216	6.77	0.77	5.04	245	7.16	0.79	4.84	349	6.30	0.42	4.76
30-39 years	735	7.34	0.44	4.99	271	7.74	0.61	5.30	213	6.78	0.74	4.13	225	5.90	0.53	4.46
40-49 years	626	6.83	0.58	4.49	243	6.88	0.77	4.68	178	6.21	0.87	4.08	181	5.56	0.43	4.53
50-59 years	473	5.81	0.32	4.39	251	6.07	0.36	4.77	105	4.45	0.65	3.08	96	4.43	0.41	3.16
60-69 years	546	6.13	0.35	4.48	247	6.25	0.44	4.51	141	5.18	0.50	3.43	152	6.12	0.75	3.57
70-79 years	444	5.29	0.39	3.95	285	5.36	0.40	4.00	93	4.89	0.69	3.30	60	*4.83	*	*2.49
80 years and over	296	5.88	0.66	3.74	250	6.12	0.62	3.89	21	*2.89	*	*2.50	19	*3.26	*	*2.47
Female																
All ages ²	7,479	4.04	0.10	3.00	2,893	3.98	0.11	3.05	1,980	4.21	0.24	2.85	2,348	4.00	0.16	3.07
2-11 months ²	432	2.96	0.09	2.93	232	2.93	0.10	2.91	84	2.90	0.20	2.65	74	3.20	0.19	3.17
1-2 years ²	630	3.02	0.08	2.73	222	3.01	0.11	2.68	173	2.87	0.15	2.62	216	3.32	0.20	2.71
3-5 years	803	3.36	0.11	2.99	206	3.29	0.17	2.94	244	3.55	0.24	2.98	328	3.60	0.17	3.09
6-11 years	877	4.26	0.16	3.38	259	4.45	0.30	3.40	213	3.41	0.17	2.91	383	3.92	0.15	3.35
12-15 years	373	4.09	0.34	3.19	123	4.06	0.38	3.38	96	4.76	1.15	2.90	140	3.97	0.33	3.41
16-19 years	397	3.93	0.37	3.11	133	3.79	0.31	3.41	114	4.96	1.33	3.08	131	4.07	0.40	2.97
20-29 years	838	3.97	0.24	3.10	244	3.72	0.21	3.05	254	5.30	0.90	3.30	317	4.17	0.37	3.31
30-39 years	791	4.67	0.34	3.06	279	4.67	0.50	3.27	241	3.96	0.47	2.82	247	4.70	0.66	2.96
40-49 years	602	3.79	0.21	2.92	224	3.71	0.25	3.07	160	3.92	0.47	2.55	185	3.59	0.39	2.84
50-59 years	456	4.28	0.40	2.85	221	4.36	0.52	3.00	125	3.92	0.77	2.54	100	3.38	0.38	2.78
60-69 years	560	4.19	0.27	2.96	246	4.08	0.33	3.01	148	3.82	0.60	2.19	153	3.44	0.35	2.37
70-79 years	407	3.59	0.29	2.61	253	3.50	0.28	2.64	93	4.10	0.67	2.55	51	*6.50	*	*2.23
80 years and over	313	3.45	0.30	2.56	251	3.29	0.19	2.60	35	*5.82	*	*2.12	23	*2.46	*	*1.63

¹Includes data for race-ethnic groups not shown separately. ²Excludes nursing infants and children.
 NOTE: Estimates of vitamin B₁₂ are very skewed; means and standard errors of the means should be used and interpreted with caution.

Table 18. Vitamin C intake in milligrams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	105	2.4	78	5,780	102	2.8	77	3,883	113	2.5	83	4,598	113	3.6	81
2-11 months ²	871	137	4.6	126	473	133	4.8	119	162	156	8.2	149	163	136	7.5	131
1-2 years ²	1,231	88	3.3	69	424	85	3.8	67	355	108	5.5	87	402	85	4.2	69
3-5 years	1,547	102	3.1	85	425	97	3.8	82	454	121	5.2	99	609	111	4.7	85
6-11 years	1,745	101	3.1	79	511	95	4.2	74	452	116	4.6	98	727	104	4.1	85
12-15 years	711	111	6.0	83	221	105	8.0	77	191	120	8.2	96	269	111	7.7	80
16-19 years	765	109	6.9	71	245	94	6.6	63	217	143	12.0	96	270	120	9.7	81
20-29 years	1,682	104	4.4	70	460	95	5.9	64	499	127	6.7	90	666	131	6.5	84
30-39 years	1,526	110	4.3	80	550	111	5.4	81	454	104	5.9	69	472	114	6.3	84
40-49 years	1,228	102	4.5	75	467	102	5.6	75	338	98	6.4	66	366	113	7.9	75
50-59 years	929	103	5.0	78	472	106	5.4	79	230	87	5.8	62	196	95	7.7	67
60-69 years	1,106	109	4.5	87	493	109	5.0	87	289	97	5.9	73	305	96	6.8	74
70-79 years	851	100	4.3	81	538	99	3.9	82	186	98	7.0	76	111	105	14.4	66
80 years and over	609	102	5.0	84	501	103	4.2	85	56	91	10.9	71	42	*62	*	*39
Male																
All ages ²	7,322	115	3.8	84	2,887	112	4.4	83	1,903	127	4.0	93	2,250	121	5.5	87
2-11 months ²	439	136	5.8	122	241	136	6.3	121	78	143	10.8	128	89	138	11.0	125
1-2 years ²	601	90	3.9	72	202	85	4.8	70	182	109	6.7	89	186	84	5.6	69
3-5 years	744	104	4.1	86	219	97	4.8	81	210	124	7.7	105	281	115	6.7	89
6-11 years	868	110	4.5	80	252	107	6.4	74	239	120	6.9	96	344	108	6.4	82
12-15 years	338	129	8.4	98	98	129	12.1	97	95	131	13.4	102	129	125	12.0	90
16-19 years	368	116	8.9	80	112	99	8.5	67	103	170	20.7	113	139	126	14.5	82
20-29 years	844	121	6.5	78	216	109	9.4	70	245	155	10.9	109	349	143	9.2	92
30-39 years	735	123	5.6	93	271	125	7.2	96	213	124	9.7	86	225	115	8.1	89
40-49 years	626	115	6.6	83	243	116	8.2	83	178	119	10.7	82	181	129	12.3	88
50-59 years	473	114	6.9	84	251	118	7.5	89	105	97	10.4	59	96	100	10.6	79
60-69 years	546	107	5.3	81	247	106	5.8	82	141	87	8.1	58	152	111	11.3	79
70-79 years	444	102	5.4	85	285	102	5.0	86	93	96	11.2	72	60	127	24.6	67
80 years and over	296	97	5.6	82	250	98	4.6	82	21	*86	*	*83	19	*43	*	*31
Female																
All ages ²	7,479	95	2.9	73	2,893	93	3.4	71	1,980	100	3.0	73	2,348	104	4.6	73
2-11 months ²	432	138	5.7	130	232	130	5.6	116	84	167	11.2	159	74	135	8.2	135
1-2 years ²	630	87	4.3	65	222	84	4.9	65	173	106	8.1	79	216	86	5.3	64
3-5 years	803	100	3.8	84	206	97	4.8	84	244	118	6.6	96	328	106	5.7	77
6-11 years	877	91	3.1	78	259	84	3.9	73	213	112	5.6	98	383	100	4.2	87
12-15 years	373	91	6.2	66	123	79	7.3	53	96	109	8.8	90	140	98	8.1	72
16-19 years	397	101	8.4	65	133	90	8.0	61	114	117	11.6	84	131	114	10.4	76
20-29 years	838	87	4.3	61	244	81	5.2	58	254	103	7.2	69	317	116	7.4	70
30-39 years	791	99	5.1	71	279	97	6.2	72	241	88	6.4	50	247	112	8.3	65
40-49 years	602	88	4.5	66	224	88	5.4	68	160	81	6.3	56	185	96	8.1	60
50-59 years	456	93	5.4	72	221	94	6.0	71	125	80	5.9	65	100	90	9.5	60
60-69 years	560	111	5.9	89	246	112	6.7	89	148	105	7.8	86	153	84	6.3	64
70-79 years	407	98	5.5	77	253	97	4.9	78	93	100	8.1	76	51	86	11.5	58
80 years and over	313	105	6.7	86	251	106	5.6	87	35	94	13.4	60	23	*72	*	*50

¹Includes data for race-ethnic groups not shown separately.

²Excludes nursing infants and children.

Table 19. Vitamin E intake in milligrams alpha-tocopherol equivalents by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	8.75	0.22	6.59	5,780	8.98	0.27	6.77	3,883	8.01	0.16	6.23	4,598	8.52	0.38	6.35
2-11 months ²	871	11.08	0.31	11.62	473	10.59	0.32	11.43	162	12.52	0.48	12.39	163	11.65	0.67	12.16
1-2 years ²	1,231	4.75	0.17	3.77	424	4.56	0.17	3.74	355	5.16	0.26	4.33	402	6.31	0.56	4.12
3-5 years	1,547	5.89	0.20	4.97	425	5.87	0.28	4.93	454	6.32	0.27	5.48	609	6.53	0.35	5.07
6-11 years	1,745	6.90	0.24	5.71	511	6.72	0.27	5.80	452	7.81	0.57	5.92	727	7.47	0.45	5.48
12-15 years	711	10.94	2.34	6.33	221	*11.51	*	*6.18	191	8.60	0.57	7.07	269	8.76	0.95	5.49
16-19 years	765	9.19	0.44	7.57	245	9.24	0.62	7.60	217	9.23	0.61	7.55	270	8.90	0.61	7.02
20-29 years	1,682	8.87	0.25	7.16	460	8.88	0.34	7.25	499	9.19	0.43	7.20	666	9.45	0.50	7.34
30-39 years	1,526	9.87	0.37	7.64	550	10.25	0.49	7.94	454	8.26	0.34	6.76	472	10.23	0.76	7.13
40-49 years	1,228	8.75	0.28	7.17	467	9.13	0.36	7.62	338	7.85	0.41	6.31	366	8.15	0.41	7.00
50-59 years	929	9.32	0.54	6.95	472	9.78	0.62	7.20	230	7.02	0.46	5.54	196	7.46	0.66	6.14
60-69 years	1,106	8.99	0.45	6.57	493	9.37	0.54	6.82	289	6.40	0.38	4.84	305	6.71	0.54	5.41
70-79 years	851	8.16	0.46	5.94	538	8.28	0.42	6.09	186	7.65	1.12	4.94	111	6.50	0.78	4.58
80 years and over	609	8.06	0.58	5.65	501	8.28	0.48	5.78	56	5.22	1.12	3.92	42	*5.11	*	*4.78
Male																
All ages ²	7,322	10.00	0.40	7.53	2,887	10.38	0.51	7.75	1,903	8.80	0.25	6.79	2,250	9.29	0.54	7.17
2-11 months ²	439	11.01	0.43	11.75	241	10.62	0.46	11.13	78	12.52	0.71	12.23	89	11.44	0.90	12.86
1-2 years ²	601	4.83	0.22	3.88	202	4.56	0.22	3.76	182	5.46	0.36	4.72	186	6.16	0.69	4.15
3-5 years	744	6.03	0.26	5.17	219	6.08	0.39	5.12	210	5.97	0.28	5.50	281	6.98	0.53	5.42
6-11 years	868	7.03	0.28	5.92	252	6.94	0.37	5.98	239	7.34	0.40	5.88	344	8.24	0.74	5.64
12-15 years	338	14.74	4.30	6.99	98	*16.40	*	*6.81	95	8.49	0.62	7.45	129	9.79	1.34	6.69
16-19 years	368	10.12	0.45	9.07	112	10.30	0.62	9.27	103	10.46	0.82	9.16	139	9.64	0.72	7.74
20-29 years	844	10.08	0.35	8.41	216	10.19	0.46	8.72	245	10.97	0.82	8.64	349	10.51	0.65	8.32
30-39 years	735	11.60	0.56	9.16	271	12.24	0.76	9.70	213	9.32	0.58	7.70	225	10.28	0.65	8.03
40-49 years	626	10.04	0.41	8.15	243	10.43	0.51	8.66	178	9.20	0.74	7.10	181	9.46	0.58	7.93
50-59 years	473	11.32	0.90	8.57	251	11.99	1.01	8.87	105	7.77	0.88	5.57	96	8.71	1.12	6.77
60-69 years	546	9.77	0.56	7.33	247	10.08	0.66	7.49	141	6.88	0.57	5.43	152	7.61	0.64	6.60
70-79 years	444	8.91	0.65	6.47	285	8.91	0.54	6.50	93	9.28	2.36	4.86	60	6.85	0.74	5.30
80 years and over	296	9.21	0.90	6.30	250	9.45	0.75	6.49	21	*4.82	*	*3.77	19	*4.95	*	*4.60
Female																
All ages ²	7,479	7.57	0.18	5.90	2,893	7.67	0.20	5.99	1,980	7.31	0.21	5.78	2,348	7.72	0.53	5.51
2-11 months ²	432	11.16	0.37	11.50	232	10.54	0.41	11.45	84	12.52	0.64	12.38	74	11.89	0.78	11.89
1-2 years ²	630	4.66	0.22	3.66	222	4.56	0.24	3.62	173	4.81	0.37	3.91	216	6.47	0.74	4.09
3-5 years	803	5.75	0.25	4.78	206	5.64	0.39	4.76	244	6.67	0.44	5.40	328	6.08	0.37	4.85
6-11 years	877	6.76	0.35	5.54	259	6.49	0.39	5.46	213	8.29	1.05	5.92	383	6.70	0.37	5.25
12-15 years	373	6.93	0.41	5.87	123	6.44	0.42	5.64	96	8.72	0.92	6.77	140	7.81	1.09	5.02
16-19 years	397	8.24	0.67	5.91	133	8.12	1.03	5.76	114	8.06	0.86	6.26	131	8.07	0.83	6.10
20-29 years	838	7.70	0.30	6.34	244	7.66	0.45	6.41	254	7.68	0.35	6.15	317	8.16	0.59	5.75
30-39 years	791	8.19	0.37	6.38	279	8.29	0.49	6.52	241	7.37	0.38	6.16	247	10.19	1.21	6.43
40-49 years	602	7.50	0.31	6.00	224	7.82	0.44	6.21	160	6.72	0.36	5.93	185	6.81	0.42	6.10
50-59 years	456	7.51	0.42	5.87	221	7.79	0.54	6.02	125	6.46	0.44	5.48	100	6.31	0.42	5.50
60-69 years	560	8.32	0.61	5.97	246	8.74	0.81	6.31	148	6.03	0.50	4.48	153	5.97	0.73	4.21
70-79 years	407	7.62	0.56	5.59	253	7.81	0.62	5.74	93	6.47	0.61	5.02	51	6.20	1.22	4.09
80 years and over	313	7.44	0.65	5.18	251	7.66	0.61	5.43	35	5.40	1.57	3.79	23	*5.19	*	*4.71

¹Includes data for race-ethnic groups not shown separately. ²Excludes nursing infants and children.
 NOTE: Estimates of vitamin E intake are very skewed; means and standard errors of the means should be used and interpreted with caution.

Table 20. Fiber intake in grams by age, sex, and race-ethnicity: United States, 1988-91

Sex and age	Total population ¹				Non-Hispanic white				Non-Hispanic black				Mexican American			
	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median	Sample size	Mean	Standard error of the mean	Median
Both sexes																
All ages ²	14,801	14.82	0.17	12.63	5,780	14.94	0.20	12.88	3,883	13.00	0.23	10.92	4,598	17.82	0.53	14.31
2-11 months ²	871	4.42	0.18	3.82	473	4.82	0.20	4.29	162	3.52	0.33	2.87	163	4.10	0.36	3.14
1-2 years ²	1,231	8.52	0.21	7.69	424	8.61	0.27	7.71	355	8.55	0.30	7.94	402	9.32	0.39	7.92
3-5 years	1,547	10.72	0.22	9.78	425	10.50	0.31	9.77	454	11.45	0.34	10.43	609	12.57	0.40	10.57
6-11 years	1,745	12.49	0.24	11.06	511	12.29	0.33	10.97	452	12.36	0.36	11.21	727	14.92	0.44	12.78
12-15 years	711	13.32	0.44	11.32	221	12.98	0.60	11.29	191	13.14	0.65	11.06	269	15.21	0.79	13.16
16-19 years	765	15.03	0.51	12.63	245	14.73	0.67	12.35	217	14.05	0.74	11.51	270	18.30	1.11	13.91
20-29 years	1,682	15.59	0.37	13.10	460	15.15	0.52	12.96	499	14.21	0.54	11.49	666	21.95	0.76	17.59
30-39 years	1,526	16.72	0.39	14.32	550	16.95	0.51	14.50	454	13.86	0.52	11.57	472	20.48	0.83	16.54
40-49 years	1,228	15.35	0.39	13.77	467	15.60	0.49	13.97	338	12.86	0.52	10.99	366	19.66	0.84	16.83
50-59 years	929	15.89	0.46	14.14	472	16.06	0.51	14.26	230	13.61	0.72	11.44	196	19.61	1.11	16.68
60-69 years	1,106	16.06	0.45	13.70	493	16.39	0.54	13.86	289	13.18	0.64	11.34	305	16.91	0.86	14.06
70-79 years	851	15.69	0.48	13.33	538	15.95	0.48	13.68	186	13.08	0.79	10.68	111	15.31	1.24	12.83
80 years and over	609	13.99	0.48	12.45	501	14.30	0.42	12.81	56	10.95	1.05	8.46	42	*13.69	*	*9.79
Male																
All ages ²	7,322	17.01	0.27	14.73	2,887	17.24	0.32	15.12	1,903	14.68	0.38	12.34	2,250	20.56	0.85	16.70
2-11 months ²	439	4.73	0.26	4.15	241	5.26	0.28	4.74	78	3.31	0.43	2.50	89	4.43	0.48	3.58
1-2 years ²	601	9.01	0.31	7.92	202	9.16	0.40	7.93	182	9.17	0.45	8.81	186	9.05	0.53	7.77
3-5 years	744	11.18	0.30	10.35	219	11.02	0.40	10.32	210	11.60	0.50	10.66	281	13.39	0.59	10.95
6-11 years	868	13.14	0.33	12.00	252	13.09	0.46	12.22	239	12.75	0.51	11.23	344	15.66	0.61	13.55
12-15 years	338	15.09	0.66	13.60	98	15.08	0.96	13.60	95	14.23	0.96	12.31	129	17.44	1.21	14.83
16-19 years	368	17.44	0.78	15.81	112	17.38	1.05	16.16	103	16.13	1.14	13.50	139	21.16	1.60	15.96
20-29 years	844	18.74	0.59	15.98	216	18.22	0.84	15.80	245	18.09	0.92	14.63	349	26.28	1.09	21.49
30-39 years	735	19.97	0.62	17.82	271	20.29	0.79	18.69	213	16.40	0.82	14.05	225	23.73	1.21	20.79
40-49 years	626	18.01	0.60	16.70	243	18.36	0.75	17.30	178	14.96	0.80	12.36	181	22.81	1.21	18.89
50-59 years	473	18.29	0.72	16.35	251	18.73	0.78	16.49	105	14.46	1.07	12.48	96	21.77	1.45	19.10
60-69 years	546	17.60	0.69	15.27	247	17.77	0.81	15.31	141	13.89	0.98	12.25	152	20.86	1.31	18.15
70-79 years	444	17.17	0.75	14.41	285	17.65	0.75	14.73	93	12.93	0.99	10.31	60	17.99	1.62	16.84
80 years and over	296	16.55	0.83	14.56	250	17.08	0.71	15.07	21	*9.00	*	*6.73	19	*19.75	*	*13.12
Female																
All ages ²	7,479	12.75	0.19	11.24	2,893	12.78	0.23	11.43	1,980	11.54	0.28	9.98	2,348	14.94	0.58	12.36
2-11 months ²	432	4.10	0.23	3.54	232	4.33	0.25	3.96	84	3.71	0.46	3.19	74	3.72	0.49	2.77
1-2 years ²	630	8.00	0.24	7.13	222	8.06	0.32	7.33	173	7.84	0.35	7.05	216	9.62	0.52	8.22
3-5 years	803	10.24	0.27	9.40	206	9.97	0.43	9.20	244	11.30	0.42	10.09	328	11.75	0.48	9.48
6-11 years	877	11.81	0.30	10.28	259	11.47	0.44	9.70	213	11.96	0.46	10.89	383	14.17	0.57	12.04
12-15 years	373	11.45	0.49	10.04	123	10.81	0.64	9.98	96	12.02	0.77	10.08	140	13.14	0.85	10.45
16-19 years	397	12.57	0.56	9.99	133	11.96	0.69	9.69	114	12.08	0.81	9.48	131	15.06	1.24	11.34
20-29 years	838	12.51	0.35	10.93	244	12.31	0.51	10.71	254	10.91	0.43	9.66	317	16.68	0.74	13.61
30-39 years	791	13.53	0.38	12.45	279	13.66	0.51	12.59	241	11.73	0.56	9.94	247	17.05	0.92	14.40
40-49 years	602	12.81	0.40	11.90	224	12.81	0.51	12.27	160	11.10	0.55	9.49	185	16.41	0.94	14.85
50-59 years	456	13.71	0.48	12.45	221	13.66	0.54	12.47	125	12.96	0.88	10.56	100	17.62	1.50	14.75
60-69 years	560	14.74	0.52	12.79	246	15.17	0.65	13.44	148	12.64	0.76	11.04	153	13.66	0.88	11.72
70-79 years	407	14.63	0.55	12.53	253	14.72	0.55	12.92	93	13.19	1.10	11.02	51	13.01	1.64	11.22
80 years and over	313	12.64	0.50	11.43	251	12.81	0.46	11.70	35	11.84	1.18	9.96	23	*10.34	*	*6.91

¹Includes data for race-ethnic groups not shown separately.²Excludes nursing infants and children.

Technical notes

Source of data and survey design

The third National Health and Nutrition Examination Survey (NHANES III) is a 6-year survey comprised of two 3-year phases, 1988–91 and 1991–94. Each phase is a representative sample of the U.S. civilian noninstitutionalized population ages 2 months and over living in households (10). Mexican Americans, blacks, children 5 years of age and younger, and persons 60 years of age and over were oversampled to provide more reliable estimates for these population groups (27).

Phase 1 data collection occurred between October 1988 and October 1991. Table I indicates the response rates for the dietary component. A total of 20,277 sample persons were identified for the NHANES III, Phase 1 sample; 17,464 sample persons (86 percent) were interviewed, and 15,630 were examined (77 percent). Dietary interviews were completed on 15,409 examinees (99 percent). Reliable 24-hour recalls were obtained from 15,280 examinees. Respondents with incomplete recalls (n=338) and breastfeeding infants and children (n=141) were excluded from all analyses; 221 persons were not interviewed because they refused (42), had communication problems (21), or for survey operation reasons such as lack of time (158). No attempt was

made to impute missing data. The Phase 1 analytic sample is made up of 14,801 respondents who had complete and reliable recalls—95 percent of the examined sample (14,801/15,630) or 73 percent of the total sample (14,801/20,277).

Statistical methodology

The complex survey design was taken into account by using appropriate survey sampling weights and statistical methods to produce national estimates. Population means, medians, and standard errors of the mean (SEMs) for nutrient intakes based on 1-day, 24-hour dietary recall data are presented in this report. Standard errors of the mean were computed using SUDAAN, a program that takes into account the sampling weights and complex sample design for calculating variance estimates (28). Because of the relatively small numbers of degrees of freedom in Phase 1 of NHANES III, an average design effect method (10) was used to stabilize standard error estimates shown in this report. Estimates that are less reliable based on statistical criteria of sample size and coefficient of variation are designated by an asterisk in the tables. Some nutrient estimates are by their nature very skewed (for example, copper, iron, zinc, vitamin A, carotenes, vitamin B₁₂, and vitamin E). This is because food and nutrient intakes varies from day to day. Consumption of certain nutrients may be very high or very low for some individuals on a specific day,

influencing population distributions. For non-normally distributed variables, the means and standard errors of the means for such variables, which assume normality, should be used and interpreted with caution.

Dietary data collection methodology

Respondents reported all foods and beverages consumed, except plain drinking water, over the previous 24-hour time period (midnight to midnight). Foods and beverages were quantified using food specific units, for example, a large-size egg or medium-size apple. Abstract food models, shape charts, and measurement aids such as rulers and household measuring cups and spoons were also used to quantify foods and beverages. During Phase 1, approximately 69 percent of all dietary interviews were completed by the respondent, 28 percent by a proxy respondent, and 3 percent by the respondent and a proxy. Proxy respondents were utilized for infants and children 2 months–5 years and for other respondents who were unable to report on their own. Children 6–11 years of age were permitted to report their own intake (54 percent), although 22 percent were completed by proxy and 24 percent were completed with both the child and a proxy. Data retrieval with day care providers and schools was conducted as necessary to obtain complete intakes for infants and children.

All 24-hour recall interviews were conducted in the mobile examination centers (MECs); the examination schedules included all days of the week. The distribution of recalls by day of the week during Phase 1 was:

Sunday	8 percent
Monday	10 percent
Tuesday	11 percent
Wednesday	19 percent
Thursday	17 percent
Friday	26 percent
Saturday	9 percent

The higher proportion of Friday recalls was due to operational procedures that allowed for a high frequency of Saturday examinations to improve response rates.

Table I. Survey response rates for the 24-hour dietary recall component: NHANES III, Phase 1, 1988–91

Response category	Number	Response rate in percent	
		Component	Survey
Total number of sample persons	20,277	...	100
Interviewed sample persons	17,464	...	86
Examined sample persons	15,630	100	77
24-hour dietary recall			
Total interviewed	15,409	99	76
Reliable	15,280	99	75
Complete	14,801	95	73
Nursing infant/child.	141	1	...
Incomplete	338	2	...
Unreliable	100	(¹)	...
Computer malfunction	29	(¹)	...
Total not interviewed.	221	1	...

¹Less than 1 percent.

Dietary interviews were conducted in English (86 percent), Spanish (12 percent), and English/Spanish or other languages (2 percent). The NHANES III Dietary Interviewer's Manual provides details for all aspects of the 24-hour recall protocol (29). Dietary interviewers were required to have a college degree in foods and nutrition. A majority of the interviewers were bilingual in English and Spanish. The dietary interviewers completed a comprehensive 2-week training course taught by an experienced bilingual trainer. The training course emphasized standardized data collection and adherence to the dietary interview protocol, proper interviewing technique, and efficient use of the Dietary Data Collection system (DDC) system during the dietary interview. Interviewer retention was excellent.

Dietary interviewer performance was monitored using several techniques including field monitoring of interviews in progress and reviews of taped dietary interviews by NCHS and Westat, Inc. (10,29,30). Throughout the survey, the dietary interviewers performed a 10-percent cross-check of printed 24-hour recall reports. Interviewer retraining sessions were conducted regularly. Field memoranda and newsletters were prepared by NCHS and Westat, Inc., staff to inform the interviewers of DDC updates and issues concerning the dietary interview protocol. Updated versions of the DDC system were installed in the MECs approximately twice per year.

Dietary terms and calculation procedures

Nutrient and dietary fiber intakes for individuals were calculated using the gram amounts of food consumed and the USDA Survey Nutrient Data Base (SNDB) nutrient values for the food expressed per 100 grams of food (31).

Micronutrients—Carotenes—Represents vitamin A activity derived from beta-carotene and other provitamin A carotenoids expressed as micrograms of retinol equivalents (RE).

Dietary fiber—Represents total dietary fiber—including both the insoluble fraction (cellulose,

hemicellulose, and lignin) and the soluble fraction (for example, gums in cereal grains and pectin in fruits and vegetables).

Folate—Represents total folate activity.

Niacin—Represents nicotinic acid and nicotinamide present in foods. Does not include potential niacin that could be converted from dietary tryptophan, a niacin precursor, in the body.

Macronutrients—Carbohydrates, fats, and protein are the macronutrients of the diet and principal sources of energy.

Sodium—Includes naturally occurring sodium, sodium contributed by compounds used in food processing, and a calculated amount of sodium used for food preparation. Excludes sodium from salt added at the table.

Total energy intake—Total food energy intake (measured in kilocalories or kcal) was calculated from grams of daily intake of protein, carbohydrate, fat, and alcohol. The energy conversion factors used were 4 kcal per gram for protein and carbohydrate, 9 kcal per gram for total fat and fatty acids, and 7 kcal per gram for alcohol.

Vitamin E —Represents vitamin E activity derived from alpha-, beta-, and gamma-tocopherol and alpha-tocopherol expressed as milligrams alpha-tocopherol equivalents (alpha-TE). One alpha-tocopherol equivalent equals 1 milligram of alpha-tocopherol, 2 milligrams of beta-tocopherol, 10 milligrams of gamma-tocopherol, or 3.3 milligrams of alpha-tocotrienol.

Data editing and statistical analysis

NCHS staff reviewed and edited the Phase 1 data files. Editing guidelines were developed by NCHS staff in consultation with U.S. Department of Agriculture (USDA) and Nutrition Coordinating Center (NCC) staff, and other knowledgeable sources. NCHS staff performed all data review and editing tasks. Meetings and workshops were conducted to discuss foods, database updates, coding procedures, and editing decisions. NCHS prepared guidelines to document data editing decisions (32). Dietary interviewers

coded the quality of all 24-hour recall interviews as "reliable," "unreliable," "refusal," or "not interviewed" (29). NCHS reviewed all notes recorded by the dietary interviewers; the notes provided information about the interview setting, the interviewer's assessment of the respondent's abilities and willingness to comply with instructions; that is, Was the respondent capable of completing the 24-hour recall? If the respondent made a reasonable effort to complete the 24-hour recall, the recall was considered to be reliable. On the other hand, if the respondent was very confused or had extraordinary difficulty recalling foods and beverages consumed the day before, the recall was coded "unreliable."

A "reliable" recall may result in unusually high or low intakes for various nutrients. For example, a 12-15-year-old non-Hispanic white male consumed a large quantity of a highly fortified cereal resulting in an extremely high intake value for vitamin E and some other nutrients. Data for this person are included in the reference tables shown in this report because the recall data were determined to be correct and "reliable." There may be situations where it would be appropriate to exclude this or other outliers because of the effect it would have on the overall analysis and conclusions, especially when sample sizes are small.

Demographic terms

Age—Age was defined as age in months or years at the time of the household interview. Infants are under 1 year of age.

Race-ethnicity—Race and ethnicity classification was based on self-reported information. Persons were classified as non-Hispanic white, non-Hispanic black, Mexican American, or "other." The "other" category is included in the total sample counts but is not presented separately.

Suggested citation

Alaimo K, McDowell MA, Briefel RR, et al. Dietary intake of vitamins, minerals, and fiber of persons ages 2 months and over in the United States: Third National Health and Nutrition Examination Survey, Phase 1, 1988–91. Advance data from vital and health statistics; no 258. Hyattsville, Maryland: National Center for Health Statistics. 1994.

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