

USDA National Fluoride Database of Selected Beverages and Foods

Prepared by

Nutrient Data Laboratory
Beltsville Human Nutrition Research Center
Agricultural Research Service
U.S. Department of Agriculture

in collaboration with

University of Minnesota, Nutrition Coordinating Center (NCC)

University of Iowa, College of Dentistry

Virginia Polytechnic Institute and State University, Food Analysis
Laboratory Control Center

National Agricultural Statistics Service (NASS), CSREES, USDA and

Food Composition Laboratory (FCL), Beltsville Human Nutrition Research Center
Agricultural Research Service, U.S. Department of Agriculture

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U.S. Department of Agriculture
Agricultural Research Service
Beltsville Human Nutrition Research Center
Nutrient Data Laboratory
10300 Baltimore Avenue
Building 005, Room 107, BARC-West
Beltsville, Maryland 20705
Tel. 301-504-0630, FAX: 301-504-0632
E-Mail: ndlinfo@rbhnrc.usda.gov
Web site: <http://www/nal/usda/gov/fnic/foodcomp>

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Disclaimers

Mention of tradenames, commercial products, or companies in this publication is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the U.S. Department of Agriculture over others not mentioned.

Documentation: USDA National Fluoride Database of Selected Beverages and Foods

Introduction

Assessment of fluoride intake is paramount in understanding the mechanisms of fluoride metabolism specifically the prevention of dental caries, dental fluorosis, and skeletal fluorosis. The Institute of Medicine (IOM, 1997) specified Adequate Intakes (AI) of 0.01 mg/day for infants through 6 months, 0.05 mg/kg/day beyond 6 months of age, and 3 mg/day and 4 mg/day for adult women and men (respectively), to prevent dental caries. Upper limits (UL) of 0.10 mg/kg/day in children less than 8 years and 10 mg/day for those older than 8 years are recommended for prevention of dental fluorosis. Similar levels have been endorsed by the American Dental Association (ADA, 1994) and the American Dietetic Association (ADA, 2000). Fluoride works primarily via topical mechanisms to inhibit demineralization, to enhance remineralization, and to inhibit bacteria associated with tooth decay (Featherstone, 2000). Fluoride has an affinity for calcified tissues. Studies of exposure and bone mineral density, fractures and osteoporosis would benefit from a national fluoride database coupled with an intake assessment tool (Phipps, 1995; Phipps *et al.*, 2000). Therefore, a database for fluoride is needed for epidemiologists and health researchers to estimate the intakes and to investigate the relationships between intakes and human health.

The Nutrient Data Laboratory (NDL), Agriculture Research Service, US Department of Agriculture (USDA) coordinated the development of this USDA National Fluoride Database of Selected Beverages and Foods subsequently described as the National Fluoride Database--a critical element of the comprehensive multi-center National Fluoride Database and Intake Study (NFDIAS). The National Fluoride Database will be incorporated into a computer-based fluoride assessment tool being developed by the University of Minnesota, Nutrition Coordinating Center (NCC), as a module of the Nutrition Data System for Research (NDS-R) software.

The National Fluoride Database is a comprehensive, nationally representative database of the fluoride concentration in foods and beverages consumed in the United States. It contains fluoride values for beverages, water, and foods that are major fluoride contributors. Water and water-based beverages are the chief source of dietary fluoride intake (Singer and Ophaug, 1984). Conventional estimates are that about 75% of dietary fluoride comes from water and water-based beverages. According to the 1992 Fluoridation Census (CDC, 1993), about 63% of the population on U.S. public water systems are receiving water that is fluoridated naturally or by adding fluoride. Drinking water fluoride distributions may vary widely over geographical and geo-political boundaries (CDC, 1993). Variations occur with soil composition and with local political decisions to fluoridate water. The use of wells of varying depths, commercial water products, home water purifiers, and filtration systems also increase variability of fluoride in drinking water and complicate estimates of intake (Brown and Aaron, 1991; Robinson *et al.* 1991; Van Winkle *et al.*, 1995). These variations in fluoride in commercial foods and beverages have been addressed in this National Fluoride Database.

Methods and procedures

Data Generation

The fluoride contents of the chief contributors to fluoride intake have been determined through a national sampling and analytical program developed by NDL under the National Food and Nutrient Analysis Program (NFNAP, Pehrsson *et al.*, 2000). In this database, mean values for fluoride in a particular beverage or food come from different data sources. Analytical data for US samples from the scientific literature and unpublished analytical data from Jackson *et al.*, 2002; Kingman, 1984; Levy *et al.*, 1992-2003; and Ophaug, 1983-1987 have been included as well as analytical data for 126 items developed specifically for this National Fluoride Database. NDL used the Key Foods approach (Haytowitz *et al.*, 2000) giving consideration to the previously published fluoride data for foods, beverages, and drinking water as well as the respective patterns of consumption of these dietary items to identify and prioritize sampling and analysis of the key food and beverage contributors of dietary fluoride. Consumption data from the 1994-96 USDA Continuing Survey of Food Intakes by Individuals and a preliminary fluoride database developed by the NCC provided the values for the initial evaluation. Mean estimates of fluoride concentration and variability in drinking water, beverages and foods that are the chief contributors to dietary fluoride in the United States have been developed from analysis of representative samplings.

High priority beverages which collectively contribute up to 80% of dietary fluoride consumed in the United States, including municipal (tap)/drinking and bottled waters, teas, carbonated beverages, beers, and ready-to drink juices and drinks were analyzed. Samples were collected according to a self-weighting, nationally representative sampling approach (Bellow *et al.*, 2002). Samples were collected in up to 144 locations across the country, depending on the level of contribution to fluoride intake. Since drinking water accounts for approximately 75% of dietary fluoride intake, sampling of drinking water was conducted, with Office of Management and Budget approval, in 144 nationally representative private residential locations nationwide (Pehrsson *et al.*, 2004). The distribution of fluoride does vary due to naturally occurring fluoride levels and local fluoridation practices. The use of well water, commercial bottled waters, home purifiers and filter systems also affects variability in fluoride content of drinking water and impacts on estimates of daily intakes for individuals. NDL contacted water suppliers about their fluoridation practices and these were compared to participant responses (Wilger *et al.*, 2004). Differences in geographical location have been incorporated into the National Fluoride Database for drinking water, brewed tea, and carbonated sodas.

Retail samples of fruit juices, fruit-flavored beverages, carbonated beverages, bottled water, and a limited number of foods were picked up in 12 to 36 locations. The author's assumption that the fluoride variability would be lower in processed beverages and foods than that of municipal water was made based on existing data and the results of the water pilot study (Miller-Ihli *et al.*, 2003), and hence fewer samples.

The procurement and sample preparation of the foods and beverages that are the chief contributors of fluoride were handled through NFNAP supervised contracts and agreements. Sample units were purchased at retail sites, following detailed instruction from NDL. Sample preparation was handled by Virginia Polytechnic Institute and State University, Food Analysis Laboratory Control Center (FALCC). A quality control (QC) oversight program was established by the NFDIAS Laboratory Methods/Quality Control Working Group with representation from NDL, the University of Iowa, and FALCC. NFDIAS quality control materials were prepared by the USDA, Food Composition Laboratory (FCL) and by the NDL and characterized by three cooperating laboratories.

The laboratory analysis of fluoride was conducted by the University of Iowa, College of Dentistry. Samples were analyzed using a fluoride ion-specific electrode direct read method for clear liquids and a micro-diffusion method for other food samples. The direct reading method was validated using Certified Reference Material (National Institute of Standards and Technology (NIST), a Standard Reference Material (SRM) 2671a, Fluoride in Freeze-Dried Urine) and by a comparison of results for several beverage samples between University of Iowa and FCL (Patterson *et al.*, 2004). The micro-diffusion method was validated by analysis of a Certified Reference Material (National Research Centre for Certified Reference Materials, Beijing, China, GBW 08572 Prawns) and other reference materials that have reference values for the fluoride content (for example: NIST, SRM 8436), prior to sample analysis. Methodological procedures for analyzing carbonated beverages were developed at the University of Iowa and presented at the March 2004 International Association for Dental Research (IADR) Meeting (Heilman *et al.*, 2004).

Values in the database are reported on a 100 g basis, and on the edible portion of a food. For some foods, no standard error was available from the literature source. Much of the literature data as well as the analytical data reported by the University of Iowa were reported on a fluid (ppm) basis. Specific gravities needed for fluoride data conversion and migrations were obtained from VPI. Specific gravities for literature data were based on the specific gravities obtained from VPI, from other sources (manufacturer), or were determined by NDL. Values for beverages other than water, coffee and tea were adjusted by their respective specific gravities and are reported as served.

Fluoride analytical results were submitted to the NFDIAS Quality Control (QC) Panel for review. These data included beer, wine, drinking water, brewed tea (considered significant contributors to total intake of fluoride) and miscellaneous lower priority foods. The fluoride value for unsweetened instant tea powder seems high when reported at 89,772 mcgs/100 grams because this product is extremely concentrated. However when one teaspoon of the unsweetened tea powder weighing 0.7 g is added to an eight ounce cup of tap water, the value for prepared instant tea is 335 mcg/100 g. This prepared unsweetened instant tea value compares well with the analytical values reported for regular brewed tea.

Data evaluation

Analytical data approved by the NFDIAS QC panel, unpublished data generated by the University of Iowa, and data gathered from the published literature by NCC and NDL were entered into the USDA National Nutrient Databank System (NDBS) for further evaluation and compilation. The data were evaluated for quality using procedures developed by scientists at the NDL as part of the Nutrient Databank System (Holden, *et al.*, 2002). These procedures were based on categories and criteria described earlier by Holden, *et al.* 1987 and Mangels, *et al.* 1993 with some modifications. Categories evaluated include: sampling plan, sample handling, number of samples, analytical method and analytical quality control. The evaluation process was modified making it specific to fluoride analytical methods. Evaluation of the analytical method has two facets: the method itself (processing of samples, analysis and quantitation method) and validation and quality control of the method by the laboratory (accuracy and precision). Both the NFNAP analytical data and data from each manuscript were evaluated for each category, which then received a rating ranging from 0 to 20 points. The ratings for each of the five categories were summed to yield a Quality Index or QI-the maximum possible score is 100 points. The Confidence Code (CC) was derived from the QI and is an indicator of relative quality of the data and the reliability of a given mean. The CC is assigned as follows:

QI	CC
75-100	A
74-50	B
49-25	C
< 25	D

Format of the table

The table contains fluoride values for 400 foods across 23 food groups. The data were aggregated where possible to match the foods in the USDA National Nutrient Database for Standard Reference (SR). Food groups are presented in alphabetical order with beverages and foods arranged in alphabetical order within a food group. Whenever possible, a NDB Number (No.) (a five digit numerical code used in the SR) is provided. This NDB No. provides the link between values for foods in this database and SR. As the data come from a variety of sources or are presented with specificity not used in SR, there are a number of beverages and foods which are included without a NDB No. In these cases, we assigned a temporary NDB No. which begins with "975." These temporary NDB Nos. are not unique to these beverages and foods and may be used in other special interest databases produced by NDL.

The fields are as follows:

Field Name	Description
Food Group	Description of food group
Item	Description of food or beverage
Mean	Amount in 100 grams, edible portion
Std Error	Standard error of the mean. Null, if could not be calculated
N	Number of data points (samples analyzed). The N=1 on NFNAP data represents a composite of 12 samples
Min	Minimum value
Max	Maximum value
Lower EB	Lower 95% error bound
Upper EB	Upper 95% error bound
CC	Confidence code indicating data quality based on evaluations of sample plan, sample handling, analytical method, analytical quality control, and number of samples analyzed
Derivation Code	Code giving specific information on how the value was determined: A = Analytical data RPA = Recipe; Known formulation; No adjustments applied, combination of source codes 1, 12 and/or 6 RPI = Recipe; Known formulation; No adjustments applied, combination of source codes which includes codes other than 1, 12 or 6
Source Code	Code indicating type of data 1 = Analytical or derived from analytical 6 = Aggregated data involving combinations of source codes 1 & 12 12 = Manufacturer's analytical; partial documentation
Statistical Comments	<ol style="list-style-type: none"> 1. The displayed summary statistics were computed from data containing some less-than values. Less-than, trace, and not detected values were calculated 2. The displayed degrees of freedom were computed using Satterthwaite's approximation (Korz and Johnson, 1988) 3. The procedure used to estimate the reliability of the generic mean requires that the data associated with each study be a simple random sample from all the products associated with the given data source (for example, manufacturer, variety, cultivar, and species) 4. For this nutrient, one or more data sources had only

one observation. Therefore, the standard errors, degrees of freedom and error bounds were computed from the between-group standard deviation of the weighted groups having only one study observation.

NDB No.	5-Digit Nutrient Databank number that uniquely identifies a food item. In a number of cases, where the descriptions provided in the literature were not as specific as those in SR, we have provided multiple NDB numbers, for which the fluoride values are also applicable.
No. of Studies	Number of studies
References	Unique descriptions of the references/sources

Data dissemination

The USDA National Fluoride Database of Selected Beverages and Foods is presented as a pdf file. The Adobe Reader® is needed to view the report of the database. A Microsoft Excel spreadsheet is also available (fluoride.xls). The user can download the database, free of charge, from NDL's web site (<http://www.nal.usda.gov/fnic/foodcomp>) onto his/her own computer for use with other programs.

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Food Group	Item	Mean mcg/100g **	Std Error	Num datapts	Min Value	Max Value	Lower 95% EB	Upper 95% EB	Confidence Code	Derv. Code	Source Code	Statistical Comments	NDB No.	No. of Studies	References
Baby Foods:															
	Cereal, mixed, with applesauce and bananas, junior	1	0.1	3	1	1			C	A	1		03188	1	Levy 1992-2003
	Cereal, oatmeal, with applesauce and bananas, junior	8		2	2	14			C	A	1		03192	1	Levy 1992-2003
	Cereal, rice, with applesauce and bananas, strained	16		2	2	31			C	A	1		03195	1	Levy 1992-2003
	Cereal, rice, with mixed fruit, junior	3		1	3	3			C	A	1		03210	1	Levy 1992-2003
	Dessert, custard pudding, vanilla, junior	4		2	4	4			C	A	1		03246	1	Levy 1992-2003
	Dessert, dutch apple, junior	2	0.3	3	1	2	0	3	C	A	1		03221	1	Levy 1992-2003
	Dessert, fruit dessert, junior	18	9.7	5	2	45	0	45	C	A	1		03236	1	Levy 1992-2003
	Dessert, peach cobbler, junior	8	6.4	4	2	28	0	48	C	A	1		03228	1	Levy 1992-2003
	Dinner, chicken noodle, junior	29	9.8	5	11	60			C	A	1		03069	1	Levy 1992-2003
	Dinner, macaroni and cheese, junior	6		2	5	7			C	A	1		03090	1	Levy 1992-2003
	Dinner, spaghetti, tomato, meat, junior	2		1	2	2			C	A	1		03050	1	Levy 1992-2003
	Dinner, turkey and rice, junior	20	8.7	4	9	46	6	16	C	A	1		03083	1	Levy 1992-2003
	Dinner, vegetables and beef, junior	21	11.4	4	2	45	0	57	C	A	1		03054	1	Levy 1992-2003
	Dinner, vegetables and ham, junior	14	9.6	4	0	42	0	44	C	A	1		03062	1	Levy 1992-2003
	Dinner, vegetables and turkey, junior	8	2.6	3	5	13	0	19	C	A	1		03085	1	Levy 1992-2003
	Fruit, apple and blueberry, junior	1		2	1	2			C	A	1		03165	1	Levy 1992-2003
	Fruit, applesauce, junior	2	1.4	3	1	5	0	8	C	A	1		03117	1	Levy 1992-2003
	Fruit, applesauce, strained	1		2	1	1			C	A	1		03116	1	Levy 1992-2003
	Fruit, apricot with tapioca, junior	0		1	0	0			C	A	1		03128	1	Levy 1992-2003
	Fruit, bananas, pineapple with tapioca, junior	16		2	2	29			C	A	1		03156	1	Levy 1992-2003
	Fruit, bananas with tapioca, junior	36		2	33	40			C	A	1		03280	1	Levy 1992-2003
	Fruit, mango with tapioca, strained	12		1	12	12			C	A	1		03140	1	Levy 1992-2003
	Fruit, peaches with sugar, strained	0		2	0	1			C	A	1		03130	1	Levy 1992-2003
	Fruit, peaches, junior	3	1.2	4	1	6	0	6	C	A	1		03131	1	Levy 1992-2003
	Fruit, pears and pineapple, junior	1		2	1	2			C	A	1		03159	1	Levy 1992-2003
	Fruit, pears, junior	9	4.7	4	0	17	0	29	C	A	1		03133	1	Levy 1992-2003
	Fruit, pears, strained	1		2	1	1			C	A	1		03132	1	Levy 1992-2003
	Fruit, plums with tapioca, junior	34		2	20	49			C	A	1		03135	1	Levy 1992-2003
	Fruit, prunes, without Vitamin C, strained	2		2	2	2			C	A	1		03139	1	Levy 1992-2003
	Juice, apple	12	2.9	6	5	22	0	55	C	A	1		03166	1	Levy 1992-2003
	Juice, apple and cherry	67	16.1	8	11	133	0	170	B	A	1		03268	1	Levy 1992-2003
	Juice, apple and grape	45	13.1	4	27	83	0	122	C	A	1		03265	1	Levy 1992-2003
	Juice, apple and peach	19	9.4	8	4	69			B	A	1		03168	1	Levy 1992-2003
	Juice, apple and prune	13		2	12	14			C	A	1		03171	1	Levy 1992-2003
	Juice, apple-cranberry	10		1	10	10			C	A	1		03169	1	Levy 1992-2003
	Meat, beef, junior	2	1.0	3	0	3	0	6	C	A	1		03003	1	Levy 1992-2003
	Meat, ham, junior	3		2	1	5			C	A	1		03009	1	Levy 1992-2003
	Meat, lamb, junior	10		2	5	14			C	A	1		03011	1	Levy 1992-2003
	Meat, turkey, junior	44		2	21	66			C	A	1		03016	1	Levy 1992-2003
	Vegetables and bacon, junior	3		1	3	3			C	A	1		03060	1	Levy 1992-2003
	Vegetables, carrots, strained	1		2	1	1			C	A	1		03099	1	Levy 1992-2003
	Vegetables, carrots, junior	12	6.9	5	1	35	0	31	C	A	1		03100	1	Levy 1992-2003
	Vegetables, corn, creamed, junior	32		2	32	32			C	A	1		03120	1	Levy 1992-2003
	Vegetables, green beans, junior	12	3.1	5	4	21	0	17	C	A	1		03092	1	Levy 1992-2003
	Vegetables, green beans, strained	16		2	15	16			C	A	1		03091	1	Levy 1992-2003
	Vegetables, peas, strained	25		2	23	28			C	A	1		03121	1	Levy 1992-2003
	Vegetables, squash, junior	5	2.2	4	1	11	0	12	C	A	1		03105	1	Levy 1992-2003
	Vegetables, squash, strained	1		2	1	1			C	A	1		03104	1	Levy 1992-2003
	Vegetables, sweetpotatoes, junior	10	4.0	5	1	22	0	39	C	A	1		03109	1	Levy 1992-2003
	Vegetables, sweetpotatoes, strained	1		2	1	1			C	A	1		03108	1	Levy 1992-2003

Food Group	Item	Mean mcg/100g **	Std Error	Num datapts	Min Value	Max Value	Lower 95% EB	Upper 95% EB	Confidence Code	Derv. Code	Source Code	Statistical Comments	NDB No.	No. of Studies	References
Baked products:															
	Biscuits, refrigerated dough, baked	26		9					C	A	1		18013 18015	1	Ophaug 1983-1987
	Bread, all (white and whole wheat)	39	4.6	34	11	57	29	49	C	A	1	4	18069 18075	4	Featherstone 1988 Kingman 1984 Ophaug 1983-1987 Taves 1983
	Bread, rye	51		9					C	A	1		18060	1	Ophaug 1983-1987
	Bread stuffing, prepared, baked	51		2					D	A	1	4	18082	1	Taves 1983
	Brownie, with nuts	38		2	33.3	43.1			D	A	1	4	97500	1	Jackson 2002
	Cake, all	22	1.9	29	18	26	16	28	C	A	1	4	97501	2	Ophaug 1983-1987 Taves 1983
	Cookies, without raisins, all	16	2.1	42	5	29	12	21	C	A	1	4	97502	5	Adair 1991 Featherstone 1988 Kingman 1984 Ophaug 1983-1987 Taves 1983
	Cookies, oatmeal raisin	69		2					D	A	1		18184	1	Kingman 1984
	Cornbread	11		9					C	A	1		18023	1	Ophaug 1983-1987
	Crackers, all	24	4.0	27	9	38	14	33	C	A	1	4	97503	4	Featherstone 1988 Kingman 1984 Ophaug 1983-1987 Taves 1983
	Doughnuts	30	4.5	11					C	A	1	4	97504	2	Kingman 1984 Ophaug 1983-1987
	Éclair, chocolate	13		2					D	A	1		18257	1	Taves 1983
	Muffin, blueberry	39		9					C	A	1		18274	1	Ophaug 1983-1987
	Pancakes, buttermilk, frozen	20		1					C	A	1		18288	1	NFNAP
	Pie, apple, frozen, heated	13		9					C	A	1		18301	1	Ophaug 1983-1987
	Pie, pumpkin, frozen, heated	32		9					C	A	1		18326	1	Ophaug 1983-1987
	Rolls, hamburger and hot dog	25		3	23	30			C	A	1	2 3	18350	1	NFNAP
	Snack type, cake roll	49		2	47	51			D	A	1	4	97505	1	Jackson 2002
	Snack type, chocolate cup cake, cream filled	38		2	37	40			D	A	1	4	97506	1	Jackson 2002
	Snack type, oatmeal cream pie	41		2	33	48			D	A	1	4	97507	1	Jackson 2002
	Tortillas, flour	33		1					C	A	1		18364	1	NFNAP
	Waffles, frozen, KELLOGG'S EGGO	35	11.0	3	23	57	0	83	D	A	1	4	18505	1	Jackson 2002
Beef products:															
	Beef, cooked and raw	22	5.2	57	4	72	11	34	C	A	1	4	97508	4	Featherstone 1988 Kingman 1984 Ophaug 1983-1987 Taves 1983
	Beef, liver, pan cooked with added fat	5		9					C	A	1		13327	1	Ophaug 1983-1987
Beverages:															
	Alcoholic beverage, beer, light	45	2.3	142	7	92	41	50	A	A	1	2 3	14006	1	NFNAP
	Alcoholic beverage, beer, regular	44	2.5	102	6	80	39	49	A	A	1	2 3	14003	1	NFNAP
	Alcoholic beverage, distilled, all (gin, rum, vodka, whiskey), 80 proof	9		9					C	A	1		14037 14050 14051	1	Ophaug 1983-1987
	Alcoholic beverage, wine, red	105	3.3	14	86	119	98	112	A	A	1	2 3	14096	1	NFNAP
	Alcoholic beverage, wine, white	202	6.3	17	152	239	189	215	A	A	1	2 3	14106	1	NFNAP
	Carbonated, cola, diet, fast food type, without ice	78		2	67	89			C	A	1	2 3	97509	1	NFNAP
	Carbonated, cola, fast food type, without ice	65		2	58	72			C	A	1	2 3	97510	1	NFNAP
	Carbonated, cola, PEPSI, all regions	32	2.9	70	1	90	26	38	A	A	1	2 3	97511	1	NFNAP
	Carbonated, cola, PEPSI, Mid-West	36	6.9	16	2	90	22	51	A	A	1	2 3	97512	1	NFNAP

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	Carbonated, cola, PEPSI, Northeast	27	7.0	14	5	74	11	42	A	A	1	2 3	97513	1	NFNAP
	Carbonated, cola, PEPSI, South	45	3.9	24	5	65	37	53	A	A	1	2 3	97514	1	NFNAP
	Carbonated, cola, PEPSI, West	13	2.1	16	1	32	8	17	A	A	1	2 3	97515	1	NFNAP
	Carbonated, cola, COCA-COLA, all regions	49	2.7	72	5	83	44	54	A	A	1	2 3	97516	1	NFNAP
	Carbonated, cola, COCA-COLA, Mid-West	46	5.7	16	9	79	34	58	A	A	1	2 3	97517	1	NFNAP
	Carbonated, cola, COCA-COLA, Northeast	53	7.3	14	5	83	39	69	A	A	1	2 3	97518	1	NFNAP
	Carbonated, cola, COCA-COLA, South	57	2.8	26	20	77	51	63	A	A	1	2 3	97519	1	NFNAP
	Carbonated, cola, COCA-COLA, West	36	6.6	16	11	82	22	50	A	A	1	2 3	97520	1	NFNAP
	Carbonated, cola, DIET PEPSI, all regions	48	4.0	70	5	121	39	56	A	A	1	2 3	97521	1	NFNAP
	Carbonated, cola, DIET PEPSI, Mid-West	46	9.2	16	7	121	26	65	A	A	1	2 3	97522	1	NFNAP
	Carbonated, cola, DIET PEPSI, Northeast	46	11.0	14	7	107	22	70	A	A	1	2 3	97523	1	NFNAP
	Carbonated, cola, DIET PEPSI, South	66	5.1	24	9	104	55	77	A	A	1	2 3	97524	1	NFNAP
	Carbonated, cola, DIET PEPSI, West	25	4.6	16	5	78	15	35	A	A	1	2 3	97525	1	NFNAP
	Carbonated, cola, DIET COKE, all regions	60	5.2	36	1	99	49	71	A	A	1	2 3	97526	1	NFNAP
	Carbonated, cola, DIET COKE, Mid-West	69	9.9	8	10	99	45	92	A	A	1	2 3	97527	1	NFNAP
	Carbonated, cola, DIET COKE, Northeast	58	14.7	7	1	96	22	93	A	A	1	2 3	97528	1	NFNAP
	Carbonated, cola, DIET COKE, South	72	5.0	13	32	91	61	83	A	A	1	2 3	97529	1	NFNAP
	Carbonated, cola, DIET COKE, West	33	11.4	8	8	97	6	60	A	A	1	2 3	97530	1	NFNAP
	Carbonated, cola, PEPSI ONE, all regions	40	5.4	34	0	87	29	51	A	A	1	2 3	97531	1	NFNAP
	Carbonated, cola, PEPSI ONE, Mid-West	47	11.2	8	0	80	21	74	A	A	1	2 3	97532	1	NFNAP
	Carbonated, cola, PEPSI ONE, Northeast	31	13.0	7	2	87	0	63	A	A	1	2 3	97533	1	NFNAP
	Carbonated, cola, PEPSI ONE, South	56	9.1	11	0	82	36	77	A	A	1	2 3	97534	1	NFNAP
	Carbonated, cola, PEPSI ONE, West	18	4.4	8	5	37	7	28	A	A	1	2 3	97535	1	NFNAP
	Carbonated, ginger ale	80	3.9	6	73	91	68	93	C	A	1	4	14136	2	Schultz 1976 Taves 1983
	Carbonated, grape soda	93	4.2	12	83	109	81	105	C	A	1	4	14142	2	Schultz 1976 Stannard 1991
	Carbonated, lemon-lime, fast food type, without ice	64		2	59	69			C	A	1	2 3	97536		NFNAP
	Carbonated, lemon-lime, SPRITE, all regions	48	4.0	36	4	81	39	56	A	A	1	2 3	14145	1	NFNAP
	Carbonated, lemon-lime, SPRITE, Mid-West	47	8.2	8	7	77	27	66	A	A	1	2 3	97537	1	NFNAP
	Carbonated, lemon-lime, SPRITE, Northeast	48	11.8	7	4	81	19	77	A	A	1	2 3	97538	1	NFNAP
	Carbonated, lemon-lime, SPRITE, South	59	3.6	13	35	76	52	67	A	A	1	2 3	97539	1	NFNAP
	Carbonated, lemon-lime, SPRITE, West	29	8.9	8	9	82	8	50	A	A	1	2 3	97540	1	NFNAP
	Carbonated, orange soda	84	3.6	28	65	101	76	92	C	A	1	4	14150	3	Featherstone 1988 Heilman 1999 Schultz 1976
	Carbonated, root beer	83	16.6	8	6	122	40	125	C	A	1	4	14157	1	Schultz 1976
	Carbonated, water, fruit-flavored	105	4.5	8	89	121	94	115	C	A	1	4	97541	1	Levy 1992-2003
	Chocolate-flavor beverage, mix for milk, powder	5		2					D	A	1		14175	1	Kingman 1984
													14557		
	Coffee, brewed	91		3	81	110			B	A	1	2 3	14209	1	NFNAP #
	Cranberry juice cocktail and blends, light, ready-to-drink	70	10.1	11	13	102	48	93	C	A	1	4	97542	1	Levy 1992-2003
	Fruit drink, CAPRI-SUN, ready-to-drink	71	2.5	129	12	110	66	76	A	A	1	2 3	14272	1	NFNAP
	Fruit drink, HAWAIIAN PUNCH, ready-to-drink	44	10.1	15	4	98	23	66	B	A	1	4	97543	1	Levy 1992-2003
	Fruit drink, HI-C, ready-to-drink	22	2.0	58	4	76	18	26	A	A	1	1 2 3	97544	1	NFNAP
	Fruit drink, MINUTE MAID punch, ready-to-drink	17	2.0	9	8	27	13	22	C	A	1	4	97545	1	Levy 1992-2003
	Fruit drink, other brands, ready-to-drink	54	5.4	30	10	108	43	65	B	A	1	4	14264	1	Levy 1992-2003
	Fruit flavored drinks, prepared from powder	42	17.3	10	2	93	0	90	C	A	1	4	14541	1	Featherstone 1988
	Fruit flavored drinks, KOOL-AID, ready-to-drink	43	9.8	18	3	103	22	63	B	A	1	4	14178	1	Levy 1992-2003
													14276		
	Fruit flavored drink, SUNNY DELIGHT, ready-to-drink	68	2.5	11	56	83	63	74	C	A	1	4	14435	1	Levy 1992-2003
	Fruit juice drink, apple, ready-to-drink	104		1					D	A	1		97546	1	Stannard 1991

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	Fruit juice drink, blends (not cranberry), ready-to-drink	49	7.5	8	22	80	31	67	C	A	1	4	14122 14327 14334 14341	1	Levy 1992-2003
	Fruit juice drink, FIVE ALIVE, ready-to-drink	8	0.3	3	8	9	7	10	C	A	1	4	97547	1	Levy 1992-2003
	Fruit juice drink, grape, ready-to-drink	32	21.2	3	9	74	0	123	C	A	1	4	14282	1	Levy 1992-2003
	Fruit juice drink, orange, ready-to-drink	55		2	19	90			C	A	1	4	42270	2	Levy 1992-2003 Stannard 1991
	Lemonade, ready to drink	25	7.5	13	3	80	8	41	B	A	1	4	97548	1	Levy 1992-2003
	Tea, brewed, microwave, all	322	4.9	36	260	383	312	332	A	A	1	2 3	97549	1	NFNAP #
	Tea, brewed, microwave, Mid-West	319	10.1	8	272	358	295	343	B	A	1	2 3	97550	1	NFNAP #
	Tea, brewed, microwave, Northeast	309	13.0	7	264	374	277	340	B	A	1	2 3	97551	1	NFNAP #
	Tea, brewed, microwave, South	322	4.9	13	260	383	312	332	A	A	1	2 3	97552	1	NFNAP #
	Tea, brewed, microwave, West	310	10.4	8	260	354	285	335	B	A	1	2 3	97553	1	NFNAP #
	Tea, brewed, decaffeinated, all	269	8.0	33	159	355	253	286	A	A	1	2 3	14352	1	NFNAP #
	Tea, brewed, decaffeinated, Mid-West	293	17.2	7	220	355	251	335	B	A	1	2 3	97554	1	NFNAP #
	Tea, brewed, decaffeinated, Northeast	279	15.9	7	237	342	240	318	B	A	1	2 3	97555	1	NFNAP #
	Tea, brewed, decaffeinated, South	264	11.5	11	217	331	239	290	B	A	1	2 3	97556	1	NFNAP #
	Tea, brewed, decaffeinated, West	247	19.7	8	159	312	200	293	B	A	1	2 3	97557	1	NFNAP #
	Tea, brewed, regular, all	373	6.2	63	257	533	360	385	A	A	1	2 3	14355	1	NFNAP #
	Tea, brewed, regular, Mid-West	393	16.8	13	312	533	357	430	A	A	1	2 3	97558	1	NFNAP #
	Tea, brewed, regular, Northeast	357	13.9	14	294	466	327	387	A	A	1	2 3	97559	1	NFNAP #
	Tea, brewed, regular, South	381	7.2	23	324	445	366	396	A	A	1	2 3	97560	1	NFNAP #
	Tea, brewed, regular, West	355	14.1	13	257	466	324	386	A	A	1	2 3	97561	1	NFNAP #
	Tea, iced, ARIZONA, ready-to-drink	123	6.3	21	84	191	110	136	A	A	1	2 3	97562	1	NFNAP
	Tea, iced, COOL NESTEA Natural Lemon, ready-to-drink	90	3.5	31	62	133	83	97	A	A	1	2 3	14137	1	NFNAP
	Tea, iced, LIPTON BRISK Lemon, ready-to-drink	72	4.8	63	38	207	63	82	A	A	1	2 3	97563	1	NFNAP
	Tea, instant, powder, unsweetened	89772		1					C	A	1		14366	1	NFNAP
	Tea, instant, powder, unsweetened, prepared with tap water	335								RPA	6		14367		
	Tea, instant, powder, with lemon and sugar	584		1					C	A	1		14370	1	NFNAP
	Tea, instant, powder, with lemon and sugar, prepared with tap water	116								RPA	6		14371		
	Thirst quencher (sport drink), GATORADE, ready-to-drink	34		1						A	1		14382	1	NFNAP
	Thirst quencher (sport drink), POWERADE, ready-to-drink	62		1						A	1		14382	1	NFNAP
	Water, bottled, AQUAFINA	5	0.6	16	1	9	4	6	A	A	1	2 3	97564	1	NFNAP
	Water, bottled, CALISTOGA	7		2					D	A	1		97565	1	NFNAP
	Water, bottled, CRYSTAL GEYSER	24		4					D	A	1		14556	1	NFNAP
	Water, bottled, DANNON	11	1.3	12	5	20	8	14	A	A	1	2 3	97566	1	NFNAP
	Water, bottled, DANNON FLUORIDE TO GO	78		1					A	A	1		97567	1	NFNAP
	Water, bottled, DASANI	7	1.2	20	2	19	4	9	A	A	1	2 3	97568	1	NFNAP
	Water, bottled, EVIAN	10	0.6	16	7	15	9	12	A	A	1	2 3	97569	1	NFNAP
	Water, bottled, NAYA	14		4					D	A	1		97570	1	NFNAP
	Water, bottled, PERRIER	31		1					D	A	1		14384	1	Stannard 1990
	Water, bottled, POLAND SPRINGS	10		1					D	A	1		14385	1	Stannard 1990
	Water, bottled, PROPEL FITNESS WATER	2		2						A	1		97571	1	NFNAP
	Water, bottled, SARATOGA	20		1					D	A	1		97572	1	Stannard 1990
	Water, bottled, VERYFINE FRUIT2O Water	6		2						A	1		97573	1	NFNAP
	Water, bottled, VOLVIC	34		1					D	A	1		97574	1	Stannard 1990
	Water, bottled, store brand	16		11					C	A	1		97575	1	NFNAP
	Water, frozen (ice)	11		3					B	A	1	2 3	97576	1	NFNAP
	Waters, tap, all regions, all (includes municipal and well)	71	2.8	288	1	193	66	77	A	A	1	1 2 3	97577	1	NFNAP
	Waters, tap, all regions, municipal \$	81	2.9	238	2	193	75	86	A	A	1	1 2 3	14429	1	NFNAP
	Waters, tap, all regions, well	26	4.8	50	1	162	17	36	A	A	1	1 2 3	97578	1	NFNAP
	Waters, tap, Mid-West, all (includes municipal and well)	88	5.1	68	4	167	78	98	A	A	1	1 2 3	97579	1	NFNAP

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	Waters, tap, Mid-West, municipal	99	4.6	52	4	167	89	108	A	A	1	1 2 3	97580	1	NFNAP
	Waters, tap, Mid-West, well	53	12.2	16	5	162	27	79	A	A	1	1 2 3	97581	1	NFNAP
	Waters, tap, Northeast, all (includes municipal and well)	69	7.5	56	2	193	54	84	A	A	1	1 2 3	97582	1	NFNAP
	Waters, tap, Northeast, municipal	74	7.7	52	2	193	58	89	A	A	1	1 2 3	97583	1	NFNAP
	Waters, tap, Northeast, well	9	3.0	4	4	17	4	17	B	A	1	1 2 3	97584	1	NFNAP
	Waters, tap, South, all (includes municipal and well)	76	4.6	100	1	191	67	86	A	A	1	1 2 3	97585	1	NFNAP
	Waters, tap, South, municipal	93	4.0	80	9	191	85	101	A	A	1	2 3	97586	1	NFNAP
	Waters, tap, South, well	10	1.6	20	1	30	6	13	A	A	1	1 2 3	97587	1	NFNAP
	Waters, tap, West, all (includes municipal and well)	47	4.8	64	3	135	38	57	A	A	1	1 2 3	97588	1	NFNAP
	Waters, tap, West, municipal	51	5.5	54	3	135	40	62	A	A	1	1 2 3	97589	1	NFNAP
	Waters, tap, West, well	24	4.3	10	5	48	14	34	B	A	1	1 2 3	97590	1	NFNAP
Breakfast cereals:															
	Corn flakes	17	3.3	15	8	22	6	27	C	A	1	4	08020 08022 08076 08246 08269	3	Kingman 1984 Ophaug 1983-1987 Taves 1983
	Farina, enriched, cooked	51	22.8	19	3	134	0	109	C	A	1	4	08113 08173	2	Featherstone 1988 # Ophaug 1983-1987 *
	Granola, with raisins	33		9					C	A	1		08220 08275 08284	1	Ophaug 1983-1987
	Grits, cooked	56	18.2	21	5	113	12	101	C	A	1	4	08091 08161	3	Featherstone 1988 # Ophaug 1983-1987 * Taves 1983 #
	Oatmeal, cooked	72	27.5	21	4	201	4	139	C	A	1	4	08121 08180	3	Featherstone 1988 # Ophaug 1983-1987 * Taves 1983 #
	Oatmeal, instant, flavored, prepared	50	10.4	9	16	88	26	74	C	A	1	4	97591	1	Jackson 2002 #
	Oat rings	50	4.5	11	45	54	0	107	C	A	1	4	08013	2	Kingman 1984 Ophaug 1983-1987
	Presweetened, ready-to-eat	24	6.1	17	8	46	7	41	C	A	1	4	97592	3	Kingman 1984 Ophaug 1983-1987 Taves 1983
	Raisin bran	65	16.4	13	34	91	0	133	C	A	1	4	08026 08060 08061	3	Kingman 1984 Ophaug 1983-1987 Taves 1983
	Rice, ready-to-eat	17	0.9	15	14	18	14	19	C	A	1	4	08015 08025 08065 08066 08156 08348 08378	3	Kingman 1984 Ophaug 1983-1987 Taves 1983
	Rice and corn, lightly sweetened, ready-to-eat	31		2	31	32			D	A	1	4	08259	1	Jackson 2002
	Wheat, ready-to-eat	27	8.0	17	8	53	5	50	C	A	1	4	08089 08147 08148 08157 08379 08384	3	Kingman 1984 Ophaug 1983-1987 Taves 1983

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Cereal grains and pastas:															
	Macaroni and spaghetti, cooked	7		9	7	7			C	A	1	4	20100 20121	1	Ophaug 1983-1987 *
	Macaroni and spaghetti, uncooked	18	6.0	6	6	25	0	44	C	A	1	4	20099 20120	1	Kingman 1984
	Noodles, egg, cooked	6		9					C	A	1	4	20110	1	Ophaug 1983-1987 *
	Rice, cooked	41	12.8	21	3	79	10	72	C	A	1	4	20045	3	Featherstone 1988 # Ophaug 1983-1987 * Taves 1983 #
Dairy and egg products:															
	Butter	3	0.7	19	1	4	0	6	C	A	1	4	01001 01002 01145	3	Kingman 1984 Ophaug 1983-1987 Taves 1983
	Buttermilk	4		9					C	A	1		01088 01176	1	Ophaug 1983-1987
	Cheese, American, processed	35		9					C	A	1		01042 01046 01048 01147 01149 01150	1	Ophaug 1983-1987
	Cheese, cheddar	35		1					C	A	1		01009 01168 01169	1	NFNAP
	Cheese, cottage	32	9.4	21	6	82	9	55	C	A	1	4	01012 01013 01014 01015 01016	3	Featherstone 1988 Ophaug 1983-1987 Taves 1983
	Cream, fluid, half and half	3		9	3	3			C	A	1	4	01049 01050 01051 01052 01053 01054 01199	1	Ophaug 1983-1987
	Cream substitute, powdered	112		9					C	A	1	4	01069	1	Ophaug 1983-1987
	Egg, cooked	5	0.7	63	2	12	3	6	C	A	1	4	01128 01129 01130 01131 01132	3	Featherstone 1988 Ophaug 1983-1987 Taves 1983
	Egg, raw	1		2					D	A	1		01123	1	Kingman 1984
	Milk, chocolate	5	0.8	11	5	6	0	15	C	A	1	4	01102 01103 01104	2	Kingman 1984 Ophaug 1983-1987
	Milk, evaporated	8	1.1	19	4	12	6	11	C	A	1	4	01096 01097 01153 01177	2	Featherstone 1988 Ophaug 1983-1987
	Milk, 1%	3	0.4	4	2	4	1	4	B	A	1	2 3	01182	1	NFNAP
	Milk, 2%	3	0.4	4	3	5	2	5	B	A	1	2 3	01079	1	NFNAP
	Milk, skim	3	0.1	5	3	3	3	3	C	A	1	2 3	01085	1	NFNAP

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	Yogurt, fruit, strawberry	9		9					C	A	1	4	01120 01121 01122	1	Ophaug 1983-1987
	Yogurt, plain, low-fat	12		9	12	12			C	A	1	4	01116 01117 01118 01119 01184 01187	1	Ophaug 1983-1987
Fast foods:															
	Chicken McNUGGETS, McDONALD'S	16		2	14	18			D	A	1	4	21229	1	Jackson 2002
	Coleslaw	11	1.4	4	8	14	6	15	D	A	1	4	21127	1	Jackson 2002
	Dessert, DAIRY QUEEN, BLIZZARD	13	0.9	6	10	16	10	15	C	A	1	4	97593	1	Jackson 2002
	Dessert, WENDY'S, FROSTY	19		2	19	19			D	A	1	4	97594	1	Jackson 2002
	French fries, McDONALD'S	115		2	38	193			D	A	1	4	21238	1	Jackson 2002
	Hamburger on roll, quarter pound patty, with condiments	28		9					C	A	1		21202	1	Ophaug 1983-1987
	Pizza	31	8.1	11	20	47	0	66	C	A	1	4	21224	2	Adair 1991 Ophaug 1983-1987
	Shake	14		9					C	A	1		14347	1	Ophaug 1983-1987
	Steak and cheese sandwich	37		1					D	A	1	4	21123	1	Adair 1991
Fats and oils:															
	Mayonnaise	9		9					C	A	1	4	04025 04026	1	Ophaug 1983-1987
	Margarine	5	3.6	11	2	9	0	51	C	A	1	4	04610	2	Ophaug 1983-1987 Taves 1983
	Margarine-like spread	25	9.1	6	5	62	1	48	C	A	1	4	04128	1	Jackson 2002
	Salad dressing, mayonnaise type	4	0.4	4	3	4	0	9	C	A	1	4	04018	1	Kingman 1984
	Salad dressings	27	5.9	15	16	44	8	46	C	A	1	4	97595	2	Ophaug 1983-1987 Taves 1983
	Vegetable oil, corn	1		9					C	A	1	4	04518	1	Ophaug 1983-1987
Finfish and shellfish products:															
	Crab, canned	210		1					C	A	1		15141	1	NFNAP
	Fish, cooked (includes broiled and fried)	18	2.9	4	15	21	0	54	D	A	1	4	97596	1	Taves 1983
	Fish sticks, baked	134		9					C	A	1		15027	1	Ophaug 1983-1987
	Shrimp, canned	201		1					C	A	1		15152	1	NFNAP
	Shrimp, fried	166		9					C	A	1		15150	1	Ophaug 1983-1987
	Tuna, light, canned in water	19		1					C	A	1		15121 5184	1	NFNAP
	Tuna, canned in oil, drained	31		9					C	A	1		15119 15124 15183 15185	1	Ophaug 1983-1987
Fruits and fruit products:															
	Apple juice, DOLE, ready-to-drink	58	6.9	22	15	127	43	72	A	A	1	2 3	09400	1	NFNAP
	Apple juice, JUICY JUICE, ready-to-drink	48	6.5	30	9	145	34	61	A	A	1	2 3	09400	1	NFNAP
	Apple juice, MINUTE MAID, ready-to-drink	28	2.8	32	8	81	22	33	A	A	1	2 3	09400	1	NFNAP
	Apple juice, MOTT'S, ready-to-drink	28	3.3	28	8	60	22	35	A	A	1	2 3	09400	1	NFNAP
	Apple, raw, with peel	3		1					C	A	1		09003	1	NFNAP
	Applesauce, sweetened	5	0.7	19	3	8	3	7	C	A	1	4	09020	2	Featherstone 1988 Ophaug 1983-1987
	Avocado, raw	7		9					C	A	1		09037	1	Ophaug 1983-1987
	Bananas, raw	2		1					C	A	1		09040	1	NFNAP
	Cantaloupe, raw	1		9					C	A	1		09181	1	Ophaug 1983-1987
	Cherries, sweet, raw	2		9					C	A	1	4	09070	1	Ophaug 1983-1987

Food Group	Item	Mean mcg/100g **	Std Error	Num datapts	Min Value	Max Value	Lower 95% EB	Upper 95% EB	Confidence Code	Derv. Code	Source Code	Statistical Comments	NDB No.	No. of Studies	References
	Cranberry sauce	2		2					D	A	1		09081	1	Taves 1983
	Fruit cocktail, canned	9	3.0	12	5	15	0	22	C	A	1	4	09351	3	Adair 1991 Ophaug 1983-1987 Taves 1983
	Grapefruit, raw	1		9					C	A	1		09111	1	Ophaug 1983-1987
	Grapefruit juice	45	5.9	40	1	115	33	57	B	A	1	4	09123	2	Levy 1992-2003 Taves 1983
	Grape juice blend (apple and grape), JUICY JUICE, ready-to-drink	102	8.9	27	53	184	84	121	A	A	1	2 3	97597	1	NFNAP
	Grape juice blend (apple, grape and pear), MINUTE MAID, ready-to-drink	43	4.4	25	10	100	34	52	A	A	1	2 3	97598	1	NFNAP
	Grape juice blend (apple and grape), MOTT'S, ready-to-drink	27	3.2	18	10	60	20	33	A	A	1	2 3	97599	1	NFNAP
	Grape juice, WELCH'S, ready-to-drink	72	3.4	20	50	95	65	79	A	A	1	2 3	09135	1	NFNAP
	Grape juice, white	204	45.7	12	139	287	16	392	C	A	1	4	97600	2	Kiritsy 1996 Stannard 1991
	Grapes, raw	49	22.0	10	27	71	0	329	C	A	1	4	09132	2	Adair 1991 Ophaug 1983-1987
	Nectar, fruit	12	2.3	11	5	26	7	17	C	A	1	4	09403 09407 09408	1	Levy 1992-2003
	Orange, juice, frozen, concentrate	20		1					C	A	1		09214	1	NFNAP
	Orange, juice, frozen, concentrate, prepared with tap water	58								RPI	6		09215		
	Orange juice, DEAN, ready-to-drink	52	9.8	22	4	145	32	72	A	A	1	1 2 3	09207	1	NFNAP
	Orange juice, MINUTE MAID, ready-to-drink	31	2.8	51	3	72	26	37	A	A	1	1 2 3	09207	1	NFNAP
	Peaches, canned	7	0.4	28	4	8	6	8	C	A	1	4	09241 09370	5	Adair 1991 Featherstone 1988 Kingman 1984 Ophaug 1983-1987 Taves 1983
	Peaches, raw	4		9					C	A	1	4	09236	1	Ophaug 1983-1987
	Pears, raw	2	0.2	20	1	3	2	3	C	A	1	4	09252	3	Adair 1991 Featherstone 1988 Ophaug 1983-1987
	Pears, canned	8	1.3	20	2	11	4	11	C	A	1	4	09257 09374	3	Adair 1991 Featherstone 1988 Ophaug 1983-1987
	Pineapple, canned, juice pack	2		9					C	A	1	4	09268	1	Ophaug 1983-1987
	Pinapple juice, canned	6	1.4	24	1	15	3	9	B	A	1	4	09409	4	Adair 1991 Featherstone 1988 Levy 1992-2003 Ophaug 1983-1987
	Plums, dried (prunes), uncooked	4		9					C	A	1	4	09291	1	Ophaug 1983-1987
	Plums, purple, raw	2		9					C	A	1	4	09279	1	Ophaug 1983-1987
	Prune juice	60	23.5	21	17	115	0	135	C	A	1	4	09294	3	Kiritsy 1996 Ophaug 1983-1987 Stannard 1991
	Raisins	234		1					C	A	1		09298	1	NFNAP
	Strawberries, raw	4		9					C	A	1	4	09316	1	Ophaug 1983-1987
	Watermelon, raw	1		9					C	A	1	4	09326	1	Ophaug 1983-1987
Lamb, veal and game:															
	Lamb chop, pan cooked with added fat	32		9					C	A	1		17227	1	Ophaug 1983-1987
	Veal cutlet, breaded, pan cooked with added fat	21	15.1	11	6	36	0	212	C	A	1	4	17096	2	Ophaug 1983-1987 Taves 1983
	Veal, liver, pan cooked with added fat	5		9					C	A	1		17204	1	Ophaug 1983-1987

Food Group	Item	Mean mcg/100g **	Std Error	Num datapts	Min Value	Max Value	Lower 95% EB	Upper 95% EB	Confidence Code	Derv. Code	Source Code	Statistical Comments	NDB No.	No. of Studies	References
Legumes and legume products:															
	Beans, baked, canned, with pork	54	13.0	11	41	67	0	219	C	A	1	4	16009	2	Kingman 1984 Ophaug 1983-1987
	Beans, mature, boiled	2	0.3	36	2	3	1	3	C	A	1	4	16032 16043 16072 16038	1	Ophaug 1983-1987 *
	Cowpeas common (blackeyes), boiled	3		9					C	A	1	4	16363	1	Ophaug 1983-1987 *
	Peanut butter, creamy	3		1					C	A	1		16098	1	NFNAP
	Peanuts, dry roasted, salted	16		9					C	A	1	4	16090	1	Ophaug 1983-1987
Meals, entrees and sidedishes:															
	Beef stew	57	3.7	10	47	68	46	67	D	A	1	4	22905	1	Featherstone 1988
	Casserole, beef, tomato and pasta	67		2					D	A	1	4	97601	1	Taves 1983
	Chicken potpie	75		9					C	A	1		22906	1	Ophaug 1983-1987
	Chicken and noodle casserole, homemade	16		9	16	16			C	A	1		97602	1	Ophaug 1983-1987
	Chili con carni, beef and beans, canned	45		9					C	A	1	4	22904	1	Ophaug 1983-1987
	Frozen meal, fried chicken, mashed potatoes, cornbread, and/or vegetable	48		9					C	A	1		97603	1	Ophaug 1983-1987
	Lasagna, homemade	18		9					C	A	1	4	97604	1	Ophaug 1983-1987
	Macaroni and cheese, prepared from mix	33	5.8	23	11	51	18	47	C	A	1	4	97605	3	Featherstone 1988 Ophaug 1983-1987 Taves 1983
	Mashed potato and gravy	84		1					D	A	1	4	97606	1	Adair 1991
	Meatloaf	30	3.4	19	18	40	21	38	C	A	1	4	97607	2	Featherstone 1988 Ophaug 1983-1987
	Spaghetti, with meat sauce	38	9.3	19	10	76	14	62	C	A	1	4	22401	2	Featherstone 1988 Ophaug 1983-1987
	Spaghetti, with sauce, no meat, canned	24	6.7	21	5	59	8	40	C	A	1	4	22914	3	Featherstone 1988 Ophaug 1983-1987 Taves 1983
	Ravioli, CHEF BOYARDEE, beef, with meat sauce, canned	13		2	12	15			D	A	1	4	22515	1	Jackson 2002
	Turkey, broccoli, cheese bake	28		2					D	A	1	4	97608	1	Taves 1983
	Turkey potpie	166		1					D	A	1		22528	1	Adair 1991
Nut and seed products:															
	Pecans, packaged, unsalted	10		9					C	A	1	4	12142	1	Ophaug 1983-1987
Pork products:															
	Bacon, cooked	22	6.9	11	15	29	0	110	C	A	1	4	10124	2	Ophaug 1983-1987 Taves 1983
	Bacon, raw	4		2					D	A	1		10123	1	Kingman 1984
	Ham, cured, baked	20	6.0	16	4	30	1	39	C	A	1	4	10151	3	Kingman 1984 Ophaug 1983-1987 Taves 1983
	Pork, chop, baked	38		2	19	57			D	A	1	4	97609	1	Jackson 2002
	Pork, chop, pan cooked, with added fat	129		9					C	A	1		10178 10179 10180 10186 10197	1	Ophaug 1983-1987
	Pork, roast, cooked	42	0.6	11	42	43	35	50	C	A	1	4	10188	2	Taves 1983 Ophaug 1983-1987

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Poultry products:															
	Chicken, cooked (includes fried and roasted)	15	2.3	36	4	25	10	20	C	A	1	4	97610	2	Featherstone 1988 Ophaug 1983-1987
	Turkey, roast	21		2					D	A	1		05166 05200 05232 05256	1	Taves 1983
Sausages and luncheon meats:															
	Bologna	29	4.0	11	25	33	0	80	C	A	1	4	07007 07008 07960 07937 07959 07952 07010 07011	2	Kingman 1984 Ophaug 1983-1987
	Ham and cheese loaf	36		2	34	38			D	A	1	4	07032	1	Jackson 2002
	Hot dogs, beef	48		1					C	A	1		07022	1	NFNAP
	Sausage, pork	18		9	18	18			C	A	1	4	07064	1	Ophaug 1983-1987
	Sausage (includes salami, not hard)	41	10.2	11	31	51	0	170	C	A	1	4	97611	2	Ophaug 1983-1987 Taves 1983
Snacks:															
	Chips, corn and tortilla	50	4.7	13	43	59	30	70	C	A	1	4	19056	2	Kingman 1984 Ophaug 1983-1987
	Popcorn, oil popped	6	2.3	11	4	9	0	35	C	A	1	4	19035	2	Kingman 1984 Ophaug 1983-1987
	Potato chip	65	7.1	7	30	86	47	82	C	A	1	4	19411	1	Jackson 2002
	Potato chip, baked	106	15.5	4	60	131	56	155	D	A	1	4	42283	1	Jackson 2002
Soups, sauces, and gravies:															
	Sauce, cheese	29		2					D	A	1		06930	1	Kingman 1984
	Sauce, spaghetti, canned	37		2	16	58			D	A	1	4	06931	1	Jackson 2002
	Sauce, tartar	30		2					D	A	1	4	97612	1	Taves 1983
	Sauce, white	4		9					C	A	1	4	06166	1	Ophaug 1983-1987
	Gravy, beef	99		1					C	A	1		06116	1	NFNAP
	Gravy, brown, prepared from mix	57	20.9	19	10	120	3	111	C	A	1	4	97613	2	Featherstone 1988 # Ophaug 1983-1987 *
	Soup, beef bouillon, canned, reconstituted	29		9					C	A	1	4	97614	1	Ophaug 1983-1987 *
	Soup, chicken broth	61		1					C	A	1	4	06413	1	NFNAP
	Soup, chicken noodle, canned, reconstituted	35	7.0	19	14	55	17	53	C	A	1	4	06419	2	Featherstone 1988 # Ophaug 1983-1987 *
	Soup, clam chowder	36		2					D	A	1	4	97615	1	Taves 1983
	Soup, corn chowder	132		1					D	A	1	4	06725	1	Adair 1991
	Soup, minestrone	86		2					D	A	1		97616	1	Taves 1983
	Soup, pea	76		4					D	A	1		97617	1	Taves 1983
	Soup, tomato, canned reconstituted, with milk	7	0.8	10	4	8	4	9	D	A	1	4	06359	1	Featherstone 1988
	Soup, vegetable beef, canned, reconstituted	43	12.3	19	12	89	11	74	C	A	1	4	06741	2	Featherstone 1988 # Ophaug 1983-1987 *
Spices and herbs:															
	Pepper, black	34		8					C	A	1	4	02030	1	Taves 1983
	Salt, iodized	2		1					C	A	1		02047	1	NFNAP

Food Group	Item	Mean mcg/100g **	Std Error	Num datapts	Min Value	Max Value	Lower 95% EB	Upper 95% EB	Confidence Code	Derv. Code	Source Code	Statistical Comments	NDB No.	No. of Studies	References
Sweets:															
	Candies, caramels	27		9					C	A	1		19074	1	Ophaug 1983-1987
	Candies, milk chocolate	5		9					C	A	1		19120	1	Ophaug 1983-1987
	Candies, M&M MARS, "M&M's" Milk Chocolate Candies	17		2	15	20			D	A	1	4	19141	1	Jackson 2002
	Candies, REESE'S Peanut Butter Cups	9		2	7	11			D	A	1	4	19150	1	Jackson 2002
	Candies, M&M MARS, SNICKERS Bar	36		2	27	46			D	A	1	4	19155	1	Jackson 2002
	Gum	5		2					D	A	1	4	19163	1	Kingman 1984
	Frozen novelties, ice type, regular, all flavors	74	11.1	3	57	95	26	122	C				19283	1	NFNAP
													19717		
	Frozen novelties, ice type, sugar free, all flavors	89	1.7	3	86	91	82	96	C	A	1	2 3	43514	1	NFNAP
	Frozen novelties, juice type	77		1									43346	1	NFNAP
	Frozen novelties, ice cream sandwich	27		9					C	A	1	4	19887	1	Ophaug 1983-1987
													19888		
													19889		
	Frozen yogurts, chocolate	40		1					D	A	1		42186	1	Jackson 2002
	Frozen yogurts, vanilla	26		1					D	A	1		42187	1	Jackson 2002
	Gelatin desserts, strawberry, prepared	69	14.3	24	18	137	36	102	C	A	1	4	19173	4	Adair 1991 # Featherstone 1988 # Ophaug 1983-1987 * Taves 1983 #
	Honey, bottled	7		9					C	A	1	4	19296	1	Ophaug 1983-1987
	Jam, strawberry	19		2					D	A	1		19297	1	Taves 1983
	Jellies	73	8.7	13	64	90	35	110	C	A	1	4	19300	2	Kingman 1984 Ophaug 1983-1987
	Ice creams, chocolate	23	2.6	3	19	28	12	34	B	A	1	2 3	19270	1	NFNAP
	Ice creams, vanilla	15	1.1	4	14	19	12	19	B	A	1	2 3	19095	1	NFNAP
	Bread pudding	74		2					D	A	1		19167	1	Taves 1983
	Puddings, instant, prepared with whole milk	22	7.7	23	4	65	4	40	C	A	1	4	19185	3	Featherstone 1988 Ophaug 1983-1987
													19203		
													19319		Taves 1983
													19331		
	Sugar, granulated	1	0.5	15	1	2	0	7	C	A	1	4	19335	2	Ophaug 1983-1987 Taves 1983
	Syrup, pancake	44	16.0	11	28	60	0	247	C	A	1	4	19129	2	Kingman 1984 Ophaug 1983-1987
Vegetables and vegetable products:															
	Asparagus, cooked	22	18.0	13	4	40	0	250	C	A	1	4	11012	2	Ophaug 1983-1987 * Taves 1983 #
	Beans, snap (includes cooked, canned, frozen)	19	6.6	36	4	62	4	34	D	A	1	4	11052	4	Featherstone 1988 # Kingman 1984 % Ophaug 1983 - 1987 * Taves 1983 #
	Beets, canned	26	0.3	11	26	27	22	30	C	A	1	4	11082	2	Ophaug 1983-1987 * Taves 1983 #
													11084		
	Broccoli, boiled	4		9	4	4			C	A	1	4	11091	1	Ophaug 1983-1987 *
	Cabbage, boiled	1		9					C	A	1		11110	1	Ophaug 1983-1987 *
	Carrots, cooked	47		2					D	A	1	4	11125	1	Taves 1983 #
	Carrots, raw	3	0.5	21	2	6	2	4	C	A	1	4	11124	3	Featherstone 1988 Kingman 1984 Ophaug 1983-1987
	Catsup	12	4.7	15	5	25	0	27	C	A	1	4	11935	3	Kingman 1984 Ophaug 1983-1987 Taves 1983
	Cauliflower, boiled	1		9					C	A	1		11135	1	Ophaug 1983-1987 *

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	Celery, raw	4		9					C	A	1		11143	1	Ophaug 1983-1987
	Coleslaw	10			9				C	A	1		11159	1	Ophaug 1983-1987
	Collard greens, boiled	27		9					C	A	1		97618	1	Ophaug 1983-1987 *
	Corn, frozen, kernels cut off cob, unprepared	15	12.2	6	1	39	0	67	C	A	1	4	11178	1	Kingman 1984
													11910		
	Corn, canned	18		9					C	A	1	4	11170	1	Ophaug 1983-1987
													11903		
	Corn, cream style, canned	28		9					C	A	1	4	11174	1	Ophaug 1983-1987
													11906		
	Cucumber, raw	1	0.7	11	1	2	0	10	C	A	1	4	11205	2	Kingman 1984 Ophaug
													11206		1983-1987
	Lettuce	5	4.2	14	0	13	0	23	C	A	1	4	97619	3	Kingman 1984
															Ophaug 1983-1987
															Taves 1983
	Lima beans, immature seeds, frozen, boiled	7		9					C	A	1	4	11038	1	Ophaug 1983-1987 *
	Mixed vegetables, canned	37	6.5	10	24	57	19	55	C	A	1	4	11579	1	Featherstone 1988 #
													11581		
													43312		
	Mushrooms, canned	10		9					C	A	1	4	11262	1	Ophaug 1983-1987
	Onion rings, breaded, fried, frozen, heated	55		9					C	A	1		11295	1	Ophaug 1983-1987
	Onions, raw	1	0.1	12	1	1	0	2	C	A	1	4	11282	2	Kingman 1984
															Ophaug 1983-1987
	Peas, green (includes cooked and canned)	29	5.0	36	8	57	18	40	C	A	1	4	97620	5	Adair 1991 #
															Featherstone 1988 #
															Kingman 1984 %
															Ophaug 1983-1987 *
															Taves 1983 #
	Peppers, sweet, green, raw	2		9					C	A	1	4	11333	1	Ophaug 1983-1987
	Pickles, cucumber, dill	24	20.3	12	4	44	0	281	C	A	1	4	11937	2	Kingman 1984
															Ophaug 1983-1987
	Potatoes, boiled	49		2					D	A	1		11365	1	Taves 1983 #
	Potatoes, french fried, frozen, heated	26	4.1	21	6	41	16	35	C	A	1	4	11403	3	Adair 1991
													11407		Featherstone 1988
													11838		Ophaug 1983-1987
													11840		
	Potatoes, hashed brown	44		2					D	A	1		11390	1	Taves 1983
	Potatoes, mashed	39	11.0	23	9	84	12	66	C	A	1	4	11371	3	Featherstone 1988
															Ophaug 1983-1987
															Taves 1983
	Potatoes, puffs, frozen, prepared	6		2	6	6			D	A	1	4	11399	1	Jackson 2002
	Potatoes, russet, baked	45		1					C	A	1		11356	1	NFNAP
	Potatoes, scalloped	31	10.1	19	4	62	6	57	C	A	1	4	11372	2	Featherstone 1988
													11844		Ophaug 1983-1987
	Radishes, raw	6		9					C	A	1	4	11429	1	Ophaug 1983-1987
	Sauerkraut, canned	7		9					C	A	1		11439	1	Ophaug 1983-1987
	Spinach, cooked	38	16.3	20	20	70	0	108	C	A	1	4	11458	2	Ophaug 1983-1987 *
															Taves 1983 #
	Squash, cooked (includes summer and winter)	2	0.0	20	2	2	2	2	C	A	1	4	97621	2	Ophaug 1983-1987 *
															Taves 1983 #
	Sweet potatoes	14	7.0	11	7	21	0	102	C	A	1	4	97622	2	Ophaug 1983-1987
															Taves 1983
	Sweet potatoes, candied, home prepared	8		9					C	A	1		11659	1	Ophaug 1983-1987

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	Tomatoes, canned	6	1.9	3	3	9	0	14	D	A	1	4	11531 11535 11885	1	Jackson 2002
	Tomatoes, raw	2		1					C	A	1		11529	1	NFNAP
	Tomato juice, canned	7	3.1	11	4	10	0	46	C	A	1	4	11540	2	Ophaug 1983-1987 Taves 1983
	Tomato sauce, canned	35		1					C	A	1		11549	1	NFNAP
	Tossed salad	5		2	3	8			D	A	1	4	97623	1	Adair 1991

**mcg/100g = ppm * 100 (beverages corrected for specific gravity)

\$ Municipal water is not well water.

* Cooked in deionized water.

Cooked/brewed in tap water.

% Unprepared.