

# **USDA Database for the Choline Content of Common Foods Release Two**

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# **Documentation: USDA Database for the Choline Content of Common Foods**

## **Introduction**

Research has shown that choline is important for the synthesis of phospholipids in cell membranes, methyl metabolism, acetylcholine synthesis, and cholinergic neurotransmission in humans (1). Betaine, a choline derivative, is also important because of its role in the donation of methyl groups to homocysteine to form methionine (2). Folate and choline are metabolically interrelated (1). Diminished folate availability increases demand for choline as a methyl donor while decreased choline availability increases demand for folate methyl groups (3). Zeisel and colleagues, have shown that healthy males fed a choline deficient diet, with normal folate and vitamin B<sub>12</sub> intake, became choline depleted and developed liver steatosis and liver damage that resolved when a source of dietary choline was provided (4).

In 1999, at an NIH sponsored workshop on trimethylaminuria, it was estimated that as much as one percent of the U.S. population may suffer from a genetic defect in the flavin-containing monooxygenase 3 gene, FM03, leading to development of a fishy body odor because patients or people who are affected accumulate trimethylamine (5-7). A choline restricted diet would be beneficial for this group of people as it diminishes body odor.

In 1998, the Food and Nutrition Board of the Institute of Medicine established dietary recommendations for choline intake, estimating an Adequate Intake (AI) at 550 mg per day for men and 425 mg per day for women. However, little data were available on the choline content of foods from which dietary intake levels could be calculated. Therefore, a choline database has been developed which provides researchers and consumers with the means to estimate choline intake from common foods. The collaborators for the database are the Nutrient Data Laboratory (NDL) of the US Department of Agriculture, Beltsville, MD and University of North Carolina at Chapel Hill, NC. This release contains about 630 food items. It replaces Release One, which was issued in March 2004.

## **Methods and procedures for generating the table**

To generate the database for choline, food sample units of more than 630 foods were purchased, processed, and analyzed for six metabolites of choline. Most of the

samples for the project were obtained nationally from 12-24 retail outlets in accordance with the national sampling plan developed for the USDA National Food and Nutrient Analysis Program (8). Approximately 15% of the analyses were based on samples picked up locally (Chapel Hill, NC or Blacksburg, VA). Food items were homogenized and analyzed as purchased (raw) or after cooking following package directions.

The food samples were analyzed by mass spectrometry in the laboratory of S. Zeisel, University of North Carolina at Chapel Hill. Choline compounds were extracted and partitioned into organic and aqueous phases using methanol and chloroform and analyzed directly by liquid chromatography-electrospray ionization-isotope dilution mass spectrometry (LC-ESI-IDMS) (9). The chemical structures of the choline metabolites are shown in Fig 1. Quality assurance was monitored through the use of duplicate sampling, in-house control materials, and standard reference materials. Samples were analyzed for betaine and these choline-contributing compounds: free choline (Cho); glycerophosphocholine (GPC); phosphocholine (Pcho); phosphatidylcholine (Ptdcho); and sphingomyelin (SM).

The analytical data for Cho, GPC, Pcho, Ptdcho, and SM are presented individually in the database because these choline sources may differ in bioavailability and knowledge of their amounts in foods support future research (10). The metabolic pathways for the interconversion of these individual choline compounds are shown in Fig. 2. Total choline content was calculated as the sum of Cho, GPC, Pcho, Ptdcho, and SM. Individual metabolites in the database are reported as mg choline moiety per 100g of food. Betaine values are not included in the calculation of total choline, since the conversion of choline to betaine is irreversible (11). Betaine values are reported as the mg of betaine/100g food. A zero value reported in the database is a true zero; samples were analyzed, but the compound (betaine, choline, etc) was not detected.

In this updated report, the betaine content of foods made from grains, such as cereal, bread, and pasta, as well as in seafood and spinach has been corrected and are significantly lower than previously reported (USDA Database for the Choline Content of Common Foods, Release One). Because these are commonly consumed foods, these differences could change previous conclusions about the probable associations between dietary betaine and risk for disease. Caution should be exercised in the interpretation of the betaine values in common foods because there are likely to be considerable variations in the betaine content of plants depending on the plant variety and growing conditions (12,13); thus more data are needed on such variability. A technical problem related to the

mass spectrometer was identified by Zeisel et al. which had resulted in an overestimation of the betaine content in some foods in Release One.

To estimate choline levels in retail ground beef, a nationwide (24 outlets) sampling of ground beef products at each of the three fat ranges (<12% fat, 12-22% fat, or >22% fat) was conducted. Ground beef samples within each geographical region were combined into regional composites for each fat level (n=12). Raw and cooked (broiled patties) samples were analyzed for choline content. Results from these analyses were used to generate regression equations for each choline metabolite in both raw and broiled ground beef. The regression equations were then used to estimate choline values for beef products varying in fat content from 5%-30%.

As with other nutrients, it should be noted that multi-component foods (e.g., mixed dishes, fast foods) can differ greatly in their choline content due to variations in formulation by manufacturers or different recipes as well as differences in the choline content of the individual ingredients. However, Fig. 3 shows the relative content of total choline for seven food groups. The database must be consulted for the choline content of specific foods since these may be considerably different from the values given in this average figure.

Values in this table may differ from those in the current USDA National Nutrient Database for Standard Reference (SR 20) due to the inclusion of additional locally obtained samples for this table. In some cases, betaine values were omitted from the table where the analytical values could not be confirmed prior to the release of this table. Additionally, betaine values may not be released for some foods in SR at this time.

### **Data evaluation**

Values in this choline database have been evaluated to show the level of confidence in these data for users. The Nutrient Data Laboratory has redesigned the software of the USDA Nutrient Data Bank to provide a system for data acquisition, compilation, and dissemination. As part of the Nutrient Data Bank System, scientists at NDL developed a procedure to facilitate the evaluation of analytical data, based on criteria described earlier by Holden, et al. (14) and Mangels, et al., (15). In brief, five categories of information are evaluated: sampling plan, sample handling, number of samples analyzed, analytical method, and analytical quality control. Criteria are established within each category with an assignment of points to each criterion; points are totaled within each category (20 points per category). The ratings for each category are summed to yield a quality index (QI) – the maximum score is 100 points. The confidence

code (CC), an indicator of the relative quality of the data and the reliability of a given mean, is derived from the QI and designated as A, B, C, or D (A being the best). The CC is assigned as follows:

<u>QI (total pts)</u>	<u>CC</u>
75-100	A
50- 74	B
25- 49	C
< 25	D

A more complete description of the procedure for determining CC has been previously reported (16). Total choline values, along with confidence codes, are presented in the table. The CC shown in the choline database refers only to the total choline values, not to the individual metabolites, including betaine. The majority of the data have a CC of B (79%) while some data have a CC of A (12%) or C (9%).

### **Format of the table**

The table contains choline and betaine values for about 630 foods across 22 food categories. The food items are arranged by food category. Each food item is identified by a unique NDB number, a five digit numerical code used in the USDA Nutrient Database for Standard Reference (SR). Foods in the choline database which do not have corresponding SR entries are designated by “98\_\_\_” in the NDB column. These temporary NDB numbers are not unique to these foods and may be re-used in future special interest databases produced by NDL.

The fields are as follows:

<u>Field</u>	<u>Description</u>
NDB No.	USDA Nutrient Data Bank number
Dissemination description	Food item description
Betaine	Betaine
Cho	Free Choline
GPC	Glycerophosphocholine
Pcho	Phosphocholine
Ptdcho	Phosphatidylcholine
SM	Sphingomyelin
N	Number of samples analyzed
Total Cho	Total choline
CC	Confidence code

## Data dissemination

The USDA Database for the Choline Content of Common Foods is presented as a PDF file. Adobe Acrobat Reader ® is needed to view the report of the database. A compressed file (choline.zip) containing the complete database in ASCII format and its documentation will be available for downloading from this web site (<http://ars.usda.gov/nutrientdata>). The user can download the database, free of charge, onto a personal computer for use with other programs.

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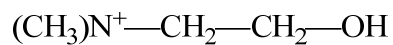
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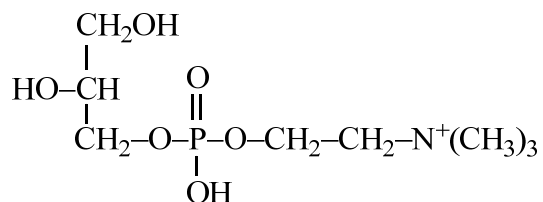
Betaine (mol. wt. 117.15)



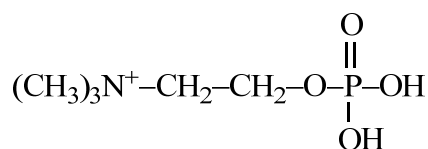
Choline (mol. wt. 104.17)



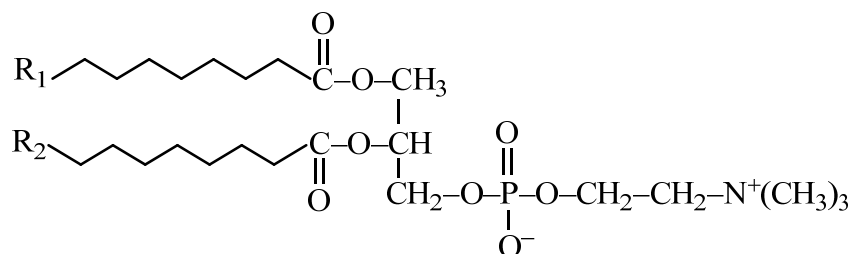
Glycerophosphocholine



Phosphocholine



Phosphatidylcholine



Sphingomyelin

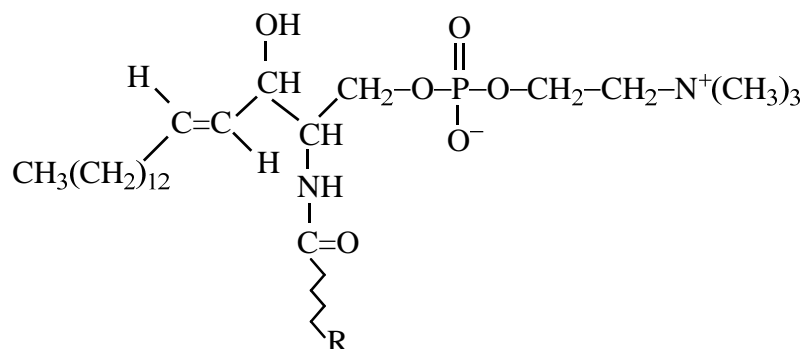


Figure 1. Chemical structures of choline and choline-containing compounds (Ref. 9)

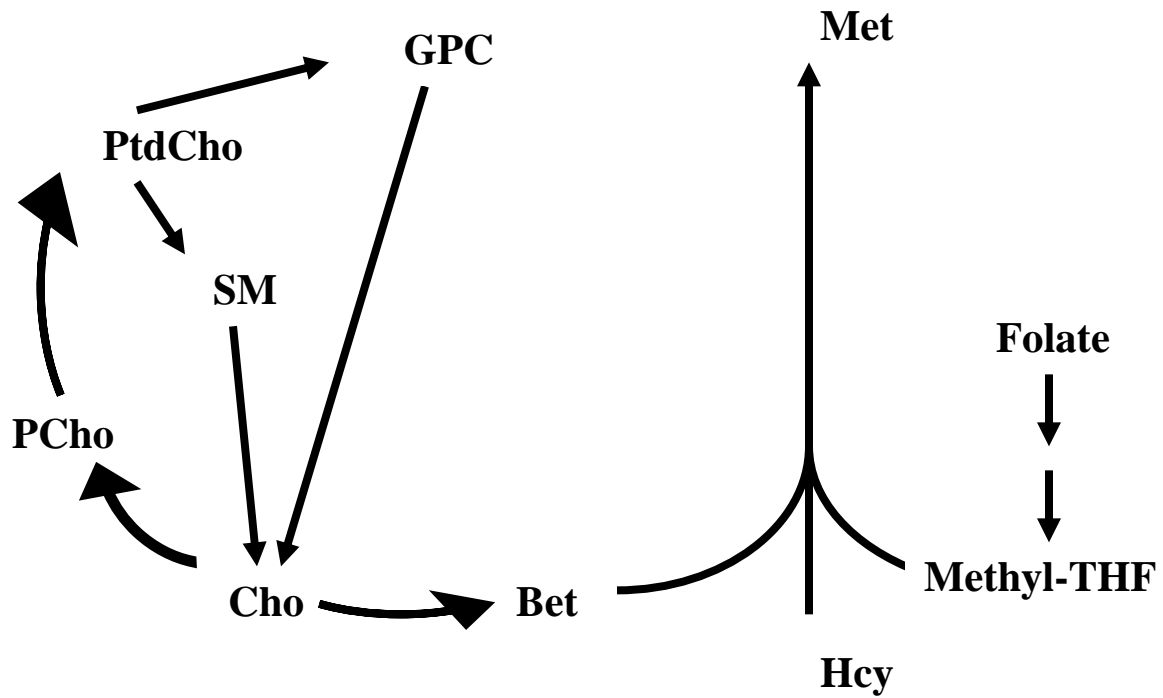
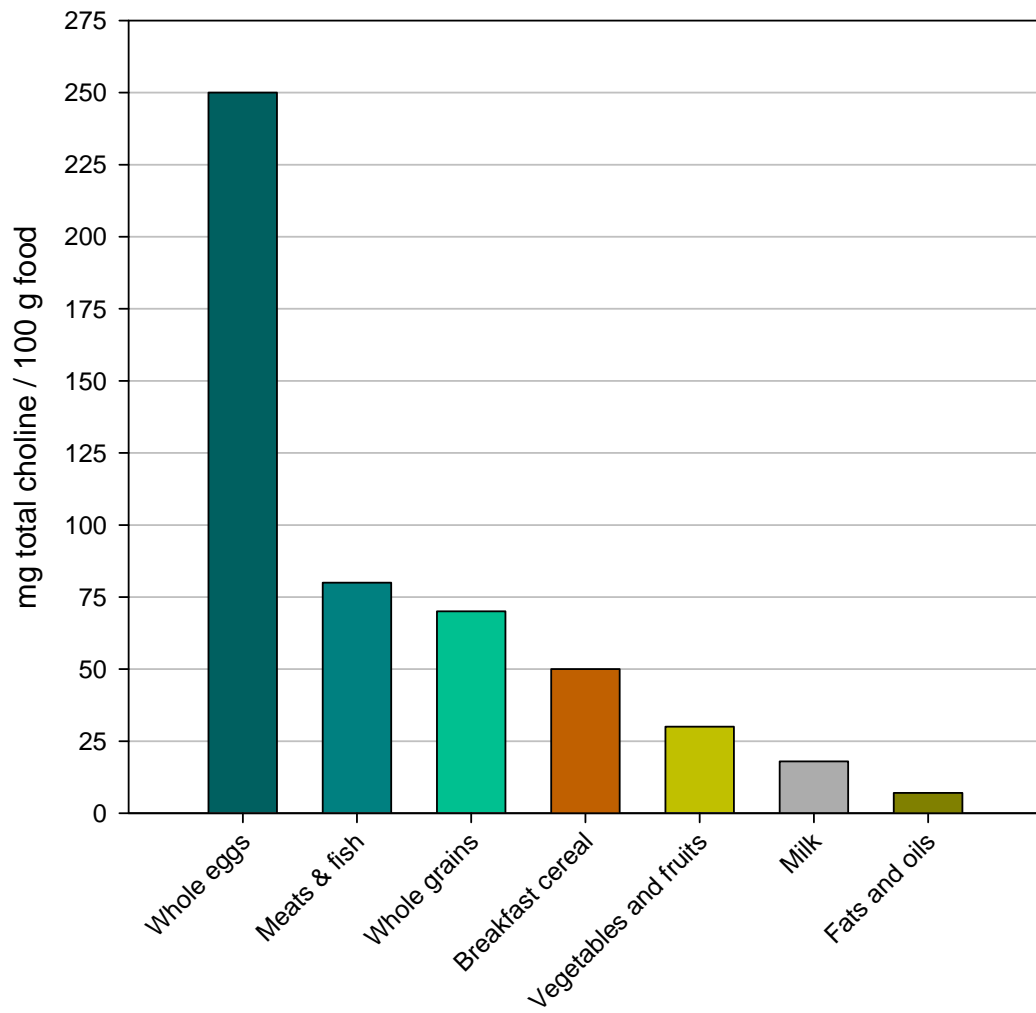


Figure 2. Metabolic pathway for choline and betaine compounds. Phosphocholine (Pcho), phosphatidylcholine(Ptdcho), glycerophosphocholine (GPC), and sphingomyelin(SM) are formed from choline (Cho). The formation of betaine (Bet) from Cho is irreversible. Betaine can donate a methyl group to homocysteine (Hcy) to form methionine (Met). Folate and Cho metabolism intersect because methyltetrahydrofolate (Methyl-THF), a product of folate metabolism, can also donate a methyl group for the formation of Met from Hcy (Ref. 11).

Figure 3. Total choline in selected foods



## USDA Database for the Choline Content of Common Foods

NDB No <sup>1</sup>	Description	Betaine <sup>2</sup>	Free Cho <sup>2</sup>	GPC <sup>2</sup>	Pcho <sup>2</sup>	Ptdcho <sup>2</sup>	SM <sup>2</sup>	Total Cho <sup>3</sup>	N	CC <sup>4</sup>
		mg/100g of food	mg choline moiety / 100 g of food							
<b>Dairy and Eggs</b>										
01001	Butter, with salt	0.3 <sup>5</sup>	0.6	1.2	0.7	11.0	5.4	19.0	1	B
01046	Cheese food, pasteurized process, american, without sodium phosphate	1.4	7.9	14.0	2.1	7.1	4.6	36.0	1	B
01009	Cheese, cheddar	0.7	1.6	2.3	0.6	7.4	4.6	17.0	1	B
01012	Cheese, cottage, creamed, large or small curd	0.7	3.6	8.4	1.3	2.5	2.5	18.0	1	B
01015	Cheese, cottage, lowfat, 2% milk fat	0.6	2.9	8.1	1.3	2.0	2.0	16.0	1	B
01014	Cheese, cottage, nonfat, uncreamed, dry large or small curd	0.9	3.7	9.2	1.6	1.6	1.8	18.0	1	B
01017	Cheese, cream	0.7	3.6	9.3	1.5	7.3	5.6	27.0	1	B
01029	Cheese, mozzarella, part skim milk, low moisture	0.7	2.3	2.7	1.0	5.2	3.0	14.0	1	B
01040	Cheese, swiss	0.6	4.5	0.6	0.0	6.3	4.2	16.0	1	B
01069	Cream substitute, powdered	0.1	0.5	1.4	0.0	0.1	0.3	2.3	3	B
01049	Cream, fluid, half and half	0.7	3.9	9.0	1.1	2.6	2.1	19.0	1	B
01199	Cream, half and half, fat free	0.7	4.0	8.0	1.2	0.9	1.0	15.0	1	B
01056	Cream, sour, cultured	0.6	3.9	7.6	1.2	3.7	2.7	19.0	2	B
01124	Egg, white, raw, fresh	0.3	0.2	0.6	0.0	0.3	0.0	1.1	4	A
01128	Egg, whole, cooked, fried	0.7	0.7	0.6	0.7	250.0	17.0	270.0	4	A
01129	Egg, whole, cooked, hard boiled	0.6	0.7	0.5	0.5	210.0	14.0	230.0	4	A
01123	Egg, whole, raw, fresh	0.6	0.6	0.6	0.6	240.0	11.0	250.0	15	A
01125	Egg, yolk, raw, fresh	0.9	1.3	0.9	1.0	630.0	45.0	680.0	4	A
01103	Milk, chocolate, fluid, commercial, reduced fat	0.7	5.4	8.2	1.1	1.7	0.8	17.0	1	B
01082	Milk, low fat, fluid, 1% milkfat, with added vitamin A	0.6	4.0	9.8	1.9	1.2	0.7	18.0	1	B
01085	Milk, nonfat, fluid, with added vitamin A (fat free skim)	1.9	2.8	9.7	1.7	0.8	0.7	16.0	1	B
01079	Milk, reduced fat fluid, 2% milk fat, with added vitamin A	0.9	2.8	10.0	1.6	1.2	0.9	16.0	2	B
01077	Milk, whole, 3.25% milkfat	0.6	3.7	7.5	1.9	0.6	0.7	14.0	1	B
43261	Yogurt, fruit variety, nonfat	0.7	3.3	7.8	2.0	1.9	1.4	16.0	1	B
01121	Yogurt, fruit, low fat, 10 grams protein per 8 ounce	0.8	2.1	7.8	1.6	1.5	1.1	14.0	2	B
01117	Yogurt, plain, low fat, 12 grams protein per 8 ounce	0.9	2.3	9.1	1.7	1.0	1.1	15.0	2	B

## USDA Database for the Choline Content of Common Foods

NDB No <sup>1</sup>	Description	Betaine <sup>2</sup>	Free Cho <sup>2</sup>	GPC <sup>2</sup>	Pcho <sup>2</sup>	Ptdcho <sup>2</sup>	SM <sup>2</sup>	Total Cho <sup>3</sup>	N	CC <sup>4</sup>
		mg/100g of food	mg choline moiety / 100 g of food							
<b>Spices and Herbs</b>										
02044	Basil, fresh	0.4	8.0	0.7	2.0	0.8	0.0	11.0	1	B
02046	Mustard, prepared, yellow	0.2	12.0	2.4	0.4	7.3	0.0	22.0	1	B
02003	Spices, basil, dried	16.0	50.0	1.3	0.0	3.2	0.4	55.0	1	B
02009	Spices, chili powder	2.8	49.0	1.0	2.2	14.0	0.0	67.0	1	B
02010	Spices, cinnamon, ground	3.9	7.0	0.9	0.8	2.4	0.0	11.0	1	B
02011	Spices, cloves, ground	1.4	29.0	1.0	1.0	6.8	0.0	37.0	1	B
02015	Spices, curry powder	29.0	42.0	1.1	1.4	20.0	0.0	64.0	1	B
02020	Spices, garlic powder	6.1	42.0	18.0	1.3	7.0	0.0	68.0	1	B
02021	Spices, ginger, ground	3.4	33.0	1.4	0.9	6.2	0.0	41.0	1	B
02024	Spices, mustard seed, yellow	1.9	46.0	0.9	0.4	75.0	0.0	120.0	1	B
02026	Spices, onion powder	0.4	25.0	4.4	1.6	7.8	0.0	39.0	1	B
02027	Spices, oregano, dried	9.8	28.0	1.6	0.0	2.1	0.2	32.0	1	B
02028	Spices, paprika	7.1	34.0	2.0	3.8	11.0	0.0	52.0	1	B
02029	Spices, parsley, dried	1.8	17.0	1.5	6.6	72.0	0.0	97.0	1	B
02030	Spices, pepper, black	8.9	9.4	0.3	0.3	1.2	0.0	11.0	2	B
02033	Spices, poppy seed	0.9	7.2	1.0	0.0	0.6	0.0	8.8	1	B
02043	Spices, turmeric, ground	9.7	21.0	2.3	3.2	22.0	0.0	49.0	1	B
<b>Baby Foods</b>										
03189	Babyfood, cereal, oatmeal, dry	21.0	5.0	11.0	0.2	16.0	0.0	32.0	1	B
03298	Babyfood, dinner, broccoli and chicken, strained	2.3	6.7	1.6	1.5	20.0	1.7	31.0	14	A
03054	Babyfood, dinner, vegetables and beef, junior	1.1	3.5	1.0	0.4	11.0	1.0	17.0	3	A
03130	Babyfood, fruit, peaches, strained	0.4	0.6	2.7	0.7	4.0	0.6	8.5	2	B
03003	Babyfood, meat, beef, junior and strained	3.1	1.5	2.3	0.3	28.0	5.6	38.0	11	A
03013	Babyfood, meat, chicken, junior and strained	12.0	3.3	2.1	1.2	31.0	5.8	43.0	11	A
03011	Babyfood, meat, lamb, junior	6.6	2.8	4.3	0.5	38.0	9.3	55.0	7	A
03016	Babyfood, meat, turkey, junior and strained	4.7	1.7	2.4	0.6	28.0	6.8	40.0	3	A
03006	Babyfood, meat, veal, junior	6.9	1.7	3.2	0.5	37.0	7.5	50.0	1	B
03091	Babyfood, vegetables, green beans, strained	0.1	2.9	0.4	1.5	17.0	0.4	23.0	2	B
03121	Babyfood, vegetables, peas, strained	0.5	5.1	0.5	1.0	25.0	0.4	32.0	1	B

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NDB No <sup>1</sup>	Description	Betaine <sup>2</sup>	Free Cho <sup>2</sup>	GPC <sup>2</sup>	Pcho <sup>2</sup>	Ptdcho <sup>2</sup>	SM <sup>2</sup>	Total Cho <sup>3</sup>	N	CC <sup>4</sup>
		mg/100g of food	mg choline moiety / 100 g of food							
03104	Babyfood, vegetables, squash, strained	0.3	4.6	0.2	0.5	2.1	0.2	7.6	2	B
98082	Infant formula, dry powder	2.5	72.0	22.0	5.2	20.0	7.0	130.0	3	C
<b>Fats and Oils</b>										
98083	Canola oil margarine	0.1	0.1	0.4	0.2	10.0	0.0	11.0	1	C
04629	Margarine, 70% vegetable oil spread, soybean and soybean (hydrogenated)	0.0	0.5	1.3	0.4	12.0	0.0	14.0	1	C
04613	Margarine, vegetable oil spread, 60% fat, tub/bottle	0.0	0.1	0.3	0.2	9.5	0.0	10.0	1	C
04585	Margarine-butter blend, 60% corn oil margarine and 40% butter	0.1	0.3	0.8	1.4	4.0	0.0	6.5	1	B
42289	Oil, corn and canola	0.0	0.0	0.2	0.0	0.0	0.0	0.2	2	B
04053	Oil, olive, salad or cooking	0.1	0.0	0.3	0.0	0.0	0.0	0.3	1	B
04044	Oil, soybean, salad or cooking	0.0	0.0	0.2	0.0	0.0	0.0	0.2	1	B
04582	Oil, vegetable, canola	0.0	0.0	0.1	0.0	0.0	0.0	0.2	1	B
04114	Salad dressing, italian dressing, commercial, regular	0.0	1.5	1.0	0.0	0.1	0.1	2.6	1	B
04636	Salad dressing, italian dressing, fat free	1.8	1.5	1.4	0.2	0.5	0.4	4.0	1	B
98001	Salad Dressing, italian, regular with egg	0.0	1.6	2.9	0.0	7.4	0.4	12.0	1	B
04025	Salad dressing, mayonnaise, soybean oil, with salt	0.0	0.0	2.4	0.1	18.0	0.9	22.0	2	B
04027	Salad dressing, mayonnaise, imitation, soybean	0.4	0.3	1.1	0.0	13.0	0.6	15.0	1	B
04638	Salad dressing, ranch dressing, fat-free	0.3	1.6	1.8	0.5	0.0	0.0	3.9	1	B
<b>Chicken and Turkey</b>										
98042	Chicken nuggets, frozen, (cooked)	18.0	5.8	1.3	1.1	28.0	5.2	41.0	3	A
98043	Chicken tenders, frozen, (cooked)	29.0	3.8	1.4	1.1	28.0	5.0	39.0	2	B
05006	Chicken, broilers and fryers, meat and skin, raw	7.8	6.0	1.0	3.6	41.0	8.5	60.0	1	B
05013	Chicken, broilers and fryers, meat only, roasted	5.7	5.7	1.1	3.7	54.0	15.0	79.0	1	B
98084	Chicken, broilers or fryers, back, meat only, cooked, rotisserie	6.6	5.8	0.8	2.8	44.0	11.0	64.0	2	B
98085	Chicken, broilers or fryers, breast, meat only, cooked, rotisserie	6.4	3.2	1.6	2.1	46.0	8.9	62.0	6	B
98110	Chicken, broilers or fryers, breast, meat only, cooked, rotisserie BBQ	8.0	3.1	1.8	2.3	47.0	6.0	60.0	4	B
98086	Chicken, broilers or fryers, drumstick, meat only, cooked,	12.0	6.0	1.1	3.0	62.0	12.0	84.0	7	B

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		mg/100g of food	mg choline moiety / 100 g of food							
	rotisserie									
98111	Chicken, broilers or fryers, drumstick, meat only, cooked, rotisserie BBQ	11.0	6.3	1.1	3.2	60.0	9.0	80.0	4	B
05009	Chicken, broilers or fryers, meat and skin, cooked, roasted	5.6	5.3	1.2	3.5	45.0	12.0	66.0	1	B
05011	Chicken, broilers or fryers, meat only, raw	8.5	5.8	1.1	3.5	45.0	11.0	66.0	1	B
98087	Chicken, broilers or fryers, skin only, cooked, rotisserie	6.1	5.1	1.4	1.8	25.0	13.0	46.0	7	B
98112	Chicken, broilers or fryers, thigh, meat only, cooked, rotisserie BBQ	11.0	5.3	1.0	2.4	52.0	7.4	68.0	4	B
98088	Chicken, broilers or fryers, thigh, meat only, cooked, rotisserie	8.4	5.8	0.8	2.8	46.0	9.7	65.0	6	B
98089	Chicken, broilers or fryers, wing, meat only, cooked, rotisserie	5.7	4.9	0.9	2.2	49.0	11.0	68.0	2	B
05661	Chicken, liver, all classes, cooked, pan-fried	21.0	69.0	7.7	6.0	210.0	32.0	330.0	4	A
05028	Chicken, liver, all classes, cooked, simmered	13.0	48.0	8.8	4.9	210.0	15.0	290.0	4	A
05027	Chicken, liver, all classes, raw	17.0	49.0	16.0	4.1	120.0	4.7	190.0	4	A
05320	Chicken, wings, frozen, barbecue flavored, glazed, conventional	14.0	4.0	1.5	1.7	55.0	15.0	77.0	1	B
05313	Chicken, wings, frozen, barbecue flavored, glazed, microwaved	17.0	5.7	1.4	1.5	52.0	14.0	74.0	2	B
05312	Chicken, wings, frozen, barbecue flavored, glazed, raw	13.0	4.6	1.4	1.6	48.0	14.0	70.0	1	B
98041	Frozen chicken nuggets (uncooked)	23.0	5.5	2.1	1.5	32.0	4.9	46.0	1	B
05174	Turkey, gizzard, all classes, cooked, simmered	1.8	9.5	3.1	3.6	41.0	25.0	82.0	1	B
05173	Turkey, gizzard, all classes, raw	2.0	41.0	0.3	5.0	24.0	19.0	90.0	1	B
05176	Turkey, heart, all classes, cooked, simmered	3.1	3.9	1.4	3.4	140.0	22.0	170.0	1	B
05175	Turkey, heart, all classes, raw	3.3	25.0	0.9	3.7	84.0	14.0	130.0	1	B
05178	Turkey, liver, all classes, cooked, simmered	2.5	9.7	13.0	2.9	170.0	26.0	220.0	1	B
05177	Turkey, liver, all classes, raw	3.0	64.0	17.0	2.1	120.0	16.0	220.0	1	B
	<b>Soups, Sauces and Gravies</b>									
98121	Hot and sour soup	1.1	0.6	0.3	0.2	37.0	1.8	40.0	1	C
06931	Sauce, pasta, spaghetti/marinara, ready-to-serve	0.6	8.5	0.8	2.0	2.4	0.0	14.0	2	B
06164	Sauce, salsa, ready to serve	0.3	7.3	1.0	1.3	2.0	0.1	12.0	1	B
06019	Soup, chicken noodle, canned, condensed	12.0	3.3	0.9	0.4	5.9	0.8	11.0	2	B

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		mg/100g of food	mg choline moiety / 100 g of food							
06030	Soup, clam chowder, new england, canned, condensed	24.0	2.0	0.9	0.4	3.5	0.2	6.9	1	B
06159	Soup, tomato, canned, condensed	4.2	6.1	0.9	1.1	4.3	0.4	13.0	1	B
<b>Sausage and Luncheon Meats</b>										
07956	Beef sausage, fresh, cooked	10.0	0.5	2.6	0.9	41.0	6.2	51.0	1	B
07954	Beef sausage, pre-cooked	7.3	3.3	1.9	1.0	31.0	6.0	43.0	1	B
07007	Bologna, beef	5.1	18.0	0.8	1.5	21.0	4.3	46.0	2	B
07960	Bologna, chicken, pork	4.4	37.0	0.6	2.4	23.0	4.1	68.0	1	B
07959	Bologna, chicken, pork, beef	4.2	24.0	1.0	2.9	27.0	5.2	59.0	3	A
07952	Bologna, chicken, turkey, pork	4.8	23.0	0.5	2.0	23.0	4.4	53.0	2	B
07022	Frankfurter, beef	5.0	3.9	1.4	0.9	24.0	3.2	34.0	2	B
07945	Frankfurter, beef, heated	5.5	4.3	1.8	1.1	29.0	3.3	39.0	2	B
07024	Frankfurter, chicken	5.1	6.2	0.9	1.8	35.0	7.3	51.0	4	B
07950	Frankfurter, meat	3.6	6.7	1.4	1.5	30.0	4.9	44.0	3	A
07949	Frankfurter, meat (heated)	3.5	5.9	1.1	1.4	29.0	5.5	43.0	2	B
07957	Pork and turkey sausage, fresh, cooked	2.2	6.7	1.7	1.0	25.0	5.1	39.0	1	B
07064	Pork sausage, fresh, cooked	3.6	7.1	9.4	0.5	43.0	6.9	67.0	5	B
07063	Pork sausage, fresh, raw	3.4	8.0	8.7	0.5	30.0	6.2	53.0	4	A
07953	Pork sausage, pre-cooked	3.1	5.5	5.4	0.7	34.0	6.9	52.0	3	A
07075	Sausage, smoked link sausage, pork and beef	2.1	23.0	0.8	0.9	22.0	4.7	51.0	1	B
07958	Turkey sausage, fresh, cooked	8.0	2.0	1.1	1.5	48.0	10.0	63.0	1	B
07955	Turkey sausage, fresh, raw	6.4	2.7	1.3	1.2	39.0	6.8	51.0	1	B
<b>Breakfast Cereals</b>										
08259	Cereals ready to eat, KELLOGG, KELLOGG'S CRISPIX	0.7	2.0	1.3	0.0	0.4	0.0	3.8	1	C
08074	Cereals ready to eat, RALSTON, TASTEEOS	20.0	2.9	4.6	0.4	7.1	0.0	15.0	1	C
08013	Cereals ready-to-eat, GENERAL MILLS, CHEERIOS	35.0	4.4	10.0	0.0	11.0	0.0	26.0	1	B
08202	Cereals ready-to-eat, GENERAL MILLS, OATMEAL CRISP with Almonds	35.0	5.0	2.1	0.7	12.0	5.1	25.0	1	C
08089	Cereals ready-to-eat, GENERAL MILLS, WHEATIES	200.0	11.0	3.7	0.6	18.0	0.0	33.0	1	C
08077	Cereals ready-to-eat, GENERAL MILLS, Whole Grain TOTAL	170.0	5.8	0.7	0.9	12.0	0.0	19.0	1	B



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		mg/100g of food	mg choline moiety / 100 g of food							
08389	Cereals ready-to-eat, Honey Puffed KASHI by KELLOGG	68.0	8.2	3.4	0.1	19.0	0.0	30.0	1	C
08001	Cereals ready-to-eat, KELLOGG, KELLOGG'S ALL-BRAN Original	360.0	26.0	4.3	1.7	18.0	0.0	49.0	1	B
08014	Cereals ready-to-eat, KELLOGG, KELLOGG'S COCOA KRISPIES	1.3	4.2	3.6	0.0	0.9	0.0	8.7	1	B
08020	Cereals ready-to-eat, KELLOGG, KELLOGG'S Corn Flakes	0.7	1.4	2.1	0.0	0.5	0.0	3.9	1	B
08030	Cereals ready-to-eat, KELLOGG, KELLOGG'S FROOT LOOPS	33.0	1.8	3.0	0.5	5.2	0.0	11.0	1	B
08065	Cereals ready-to-eat, KELLOGG, KELLOGG'S RICE KRISPIES	0.5	2.0	3.1	0.0	1.0	0.0	6.0	2	B
08067	Cereals ready-to-eat, KELLOGG, KELLOGG'S SPECIAL K	26.0	12.0	4.1	0.3	12.0	2.1	31.0	2	B
08383	Cereals ready-to-eat, KELLOGG, KELLOGG'S SPECIAL K RED BERRIES	38.0	7.5	2.1	0.4	6.4	5.5	22.0	1	C
08333	Cereals ready-to-eat, KRAFT, POST HONEY BUNCHES OF OATS Honey Roasted Cereal	22.0	6.0	2.0	0.1	5.3	0.0	13.0	1	C
08061	Cereals ready-to-eat, KRAFT, POST Raisin Bran Cereal	290.0	12.0	5.0	0.8	11.0	0.0	29.0	1	B
08012	Cereals ready-to-eat, QUAKER, CAP'N CRUNCH'S PEANUT BUTTER CRUNCH	1.8	7.1	1.7	0.7	5.2	0.0	15.0	1	B
08363	Cereals ready-to-eat, QUAKER, KRETSCHMER Toasted Wheat Bran	320.0	54.0	5.9	2.0	19.0	0.9	81.0	2	B
08218	Cereals ready-to-eat, QUAKER, QUAKER 100% Natural Cereal with oats, honey, and raisins	140.0	8.3	11.0	2.0	11.0	0.0	32.0	1	B
08505	Cereals ready-to-eat, RALSTON Corn Biscuits	7.1	2.6	4.9	0.1	0.6	2.9	11.0	1	C
08506	Cereals ready-to-eat, RALSTON Corn Flakes	1.2	1.6	0.3	0.0	0.3	0.0	2.2	1	C
08504	Cereals ready-to-eat, RALSTON Enriched Bran flakes	120.0	11.0	2.0	0.5	15.0	3.0	31.0	2	C
08435	Cereals ready-to-eat, UNCLE SAM CEREAL	250.0	12.0	7.1	0.6	29.0	0.0	50.0	1	B
08084	Cereals ready-to-eat, wheat germ, toasted, plain	410.0	130.0	18.0	2.2	23.0	2.7	180.0	2	B
08147	Cereals ready-to-eat, wheat, shredded, plain, sugar and salt free	160.0	5.5	3.2	0.9	14.0	0.0	23.0	1	B
08105	Cereals, CREAM OF WHEAT, quick, cooked with water, without salt	6.9	1.6	0.7	0.0	1.2	0.0	3.5	1	B
08121	Cereals, oats, regular and quick and instant, unenriched, cooked with water, without salt	3.1	1.3	1.6	0.0	4.5	0.0	7.4	1	B
08092	Cereals, QUAKER, corn grits, instant, plain, dry	1.1	4.2	1.4	0.3	6.2	2.4	14.0	1	B
08093	Cereals, QUAKER, corn grits, instant, plain, prepared with water	0.2	1.0	0.4	0.1	1.2	0.0	2.6	1	B

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		mg/100g of food	mg choline moiety / 100 g of food							
<b>Fruits and Fruit Products</b>										
98005	Apple juice, calcium enriched with added vitamin C	0.1	0.7	0.7	0.0	0.4	0.0	1.8	1	B
09003	Apples, raw, with skin	0.1	0.3	0.0	0.0	3.1	0.0	3.4	1	B
09032	Apricots, dried, sulfured, uncooked	0.3	7.1	0.8	0.0	6.0	0.0	14.0	1	B
09038	Avocados, raw, California	0.7	8.6	0.7	2.5	2.2	0.1	14.0	2	B
09040	Bananas, raw	0.1	3.2	5.6	0.5	0.4	0.0	9.8	1	B
09042	Blackberries, raw	0.3	1.8	0.8	0.0	6.0	0.0	8.6	1	B
09050	Blueberries, raw	0.2	3.0	0.6	0.7	1.8	0.0	6.0	1	B
09433	Clementines, raw	0.1	11.0	0.5	0.3	2.1	0.2	14.0	1	B
09078	Cranberries, raw	0.2	1.3	1.0	0.5	2.6	0.0	5.5	1	B
09087	Dates, deglet noor	0.4	6.1	0.0	0.1	0.1	0.0	6.3	2	B
09421	Dates, medjool	0.4	8.9	0.0	0.0	0.8	0.2	9.9	1	B
09094	Figs, dried, uncooked	0.8	13.0	0.4	0.1	2.6	0.0	16.0	2	B
09135	Grape juice, canned or bottled, unsweetened, without added vitamin C	0.2	3.0	0.0	0.0	0.2	0.0	3.2	1	B
09112	Grapefruit, raw, pink and red, all areas	0.2	3.6	1.2	0.3	2.6	0.0	7.5	2	B
09132	Grapes, red or green (European type varieties, such as, Thompson seedless), raw	0.1	4.8	0.0	0.6	0.2	0.0	5.6	2	B
09434	Guanabana nectar, canned	0.0	0.8	1.2	0.2	0.1	0.0	2.2	1	B
09435	Guava nectar, canned	0.1	0.5	0.5	0.0	0.1	0.0	1.1	1	B
09148	Kiwi fruit, (Chinese gooseberries), fresh, raw	0.5	2.6	1.0	0.5	3.6	0.0	7.8	2	B
09160	Lime juice, raw	0.2	1.1	0.9	0.7	2.5	0.0	5.1	1	B
09436	Mango nectar, canned	0.0	1.0	0.3	0.3	0.0	0.0	1.5	1	B
09181	Melons, cantaloupe, raw	0.1	4.1	0.7	1.1	1.6	0.0	7.6	1	B
09191	Nectarines, raw	0.2	1.7	1.2	0.6	2.7	0.0	6.2	1	B
09209	Orange juice, chilled, includes from concentrate	0.2	2.2	1.9	0.4	2.2	0.0	6.6	2	B
09214	Orange juice, frozen concentrate, unsweetened, undiluted	0.5	8.1	4.2	0.6	7.0	0.0	20.0	1	B
09202	Oranges, raw, navel	0.1	4.7	1.1	0.5	2.1	0.0	8.4	2	B
98114	Peaches, canned in heavy syrup, drained liquid	0.3	0.5	1.0	0.5	0.4	0.2	2.7	1	B
09370	Peaches, canned, heavy syrup, drained, solids	0.3	0.4	0.9	0.5	1.8	0.2	3.8	1	B
09236	Peaches, raw	0.3	0.8	1.1	0.5	3.7	0.0	6.1	1	B
09257	Pears, canned, heavy syrup pack, solids and liquids	0.3	0.6	1.1	0.0	0.3	0.0	1.9	1	B

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		mg/100g of food	mg choline moiety / 100 g of food							
09252	Pears, raw	0.2	2.2	0.2	0.0	2.7	0.0	5.1	3	B
09430	Pineapple, raw, extra sweet variety	0.1	4.2	0.0	0.4	0.8	0.0	5.4	1	B
09429	Pineapple, raw, traditional varieties	0.1	5.1	0.0	0.5	0.1	0.0	5.7	1	B
09291	Plums, dried, (prunes), uncooked	0.4	6.7	0.9	0.0	2.5	0.0	10.0	2	B
09298	Raisins, seedless	0.3	9.4	0.3	1.1	0.3	0.0	11.0	2	B
09302	Raspberries, raw	0.8	3.1	1.6	0.6	7.0	0.0	12.0	1	B
09316	Strawberries, raw	0.2	0.6	0.9	0.0	4.2	0.0	5.7	1	B
09437	Tamarind nectar, canned	0.1	0.3	0.9	0.1	0.0	0.0	1.3	1	B
09218	Tangerines, (mandarin oranges), raw	0.1	5.2	1.0	0.6	3.5	0.0	10.0	1	B
09326	Watermelon, raw	0.3	3.1	0.0	0.7	0.2	0.1	4.1	1	B
<b>Pork products</b>										
98092	Pickled pigs feet	0.4	0.7	2.3	0.0	10.0	15.0	28.0	1	B
10864	Pork, bacon, rendered fat, cooked	0.2	0.2	0.0	0.0	5.4	1.0	6.5	1	B
10860	Pork, cured, bacon, cooked, baked	3.4	12.0	14.0	2.5	82.0	9.3	120.0	4	A
10861	Pork, cured, bacon, cooked, microwaved	3.0	12.0	11.0	2.5	89.0	11.0	120.0	4	A
10862	Pork, cured, bacon, cooked, pan-fried	4.2	12.0	19.0	3.0	87.0	10.0	130.0	4	A
10123	Pork, cured, bacon, raw	0.9	4.4	4.6	1.4	32.0	3.9	47.0	4	A
10865	Pork, cured, ham -- water added, rump, bone-in, separable lean only, heated, roasted	5.0	2.0	9.6	1.0	65.0	5.9	84.0	1	B
10867	Pork, cured, ham -- water added, shank, bone-in, separable lean only, heated, roasted	2.9	2.7	7.8	1.1	71.0	8.3	91.0	2	B
10868	Pork, cured, ham -- water added, slice, bone-in, separable lean only, heated, pan-broil	5.5	2.0	9.0	0.9	70.0	8.1	90.0	4	A
10878	Pork, cured, ham -- water added, slice, boneless, separable lean only, heated, pan-broil	4.8	1.6	10.0	0.8	61.0	5.5	79.0	4	B
10879	Pork, cured, ham -- water added, whole, boneless, separable lean only, heated, roasted	4.3	1.2	9.0	0.8	57.0	5.9	74.0	4	B
10880	Pork, cured, ham -- water added, whole, boneless, separable lean only, unheated	3.5	1.5	9.7	0.9	55.0	5.2	72.0	4	B
10877	Pork, cured, ham and water product, rump, bone-in, separable lean only, heated, roasted	3.6	1.8	9.5	0.9	74.0	8.3	94.0	2	B
10881	Pork, cured, ham and water product, shank, bone-in, separable lean only, heated, roasted	5.3	2.2	7.3	0.9	83.0	10.0	100.0	2	B

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		mg/100g of food	mg choline moiety / 100 g of food							
10869	Pork, cured, ham and water product, slice, bone-in, separable lean only, heated, pan-broil	3.9	2.2	9.0	0.8	73.0	7.7	92.0	2	B
10870	Pork, cured, ham and water product, slice, boneless, separable lean only, heated, pan-broil	4.5	2.2	7.1	0.8	50.0	4.5	65.0	2	B
10871	Pork, cured, ham and water product, whole, boneless, separable lean only, heated, roasted	4.4	2.8	6.5	0.6	49.0	4.4	63.0	2	B
10872	Pork, cured, ham and water product, whole, boneless, separable lean only, unheated	3.2	1.3	8.5	0.8	50.0	4.7	65.0	2	B
10873	Pork, cured, ham with natural juices, rump, bone-in, separable lean only, heated, roasted	3.0	1.7	15.0	0.8	81.0	13.0	110.0	2	B
10874	Pork, cured, ham with natural juices, shank, bone-in, separable lean only, heated, roasted	2.9	2.2	8.1	0.9	84.0	9.6	100.0	2	B
10875	Pork, cured, ham with natural juices, slice, bone-in, separable lean only, heated, pan-broil	1.8	2.0	23.0	0.9	100.0	13.0	140.0	1	B
10882	Pork, cured, ham with natural juices, slice, boneless, separable lean only, heated, pan-broil	6.3	1.5	12.0	0.9	62.0	6.3	82.0	4	A
10876	Pork, cured, ham with natural juices, spiral slice, meat only, boneless, separable lean only, heated, roasted	3.7	0.6	11.0	1.0	67.0	6.5	86.0	1	B
10883	Pork, cured, ham with natural juices, whole, boneless, separable lean only, heated, roasted	7.8	2.0	9.5	1.0	61.0	6.7	80.0	3	B
10884	Pork, cured, ham with natural juices, whole, boneless, separable lean only, unheated	5.5	1.5	12.0	1.0	55.0	5.5	75.0	4	A
10931	Pork, cured, ham, rump, bone-in, separable lean only, heated, roasted	7.3	1.6	8.2	0.9	84.0	10.0	110.0	3	B
10932	Pork, cured, ham, rump, bone-in, separable lean only, unheated	6.3	1.3	8.2	0.9	72.0	9.2	92.0	3	B
10894	Pork, cured, ham, separable fat, boneless, heated	2.6	0.8	4.8	0.6	27.0	3.6	37.0	1	B
10895	Pork, cured, ham, separable fat, boneless, unheated	1.9	0.4	4.3	0.6	23.0	2.8	31.0	1	B
10933	Pork, cured, ham, shank, bone-in, separable lean only, heated, roasted	7.2	1.2	8.6	1.0	83.0	12.0	110.0	3	B
10934	Pork, cured, ham, shank, bone-in, separable lean only, unheated	6.0	1.1	7.7	1.1	72.0	8.5	91.0	3	B
10899	Pork, cured, ham, slice, bone-in, separable lean only, heated, pan-broil	7.3	1.3	9.8	1.0	89.0	12.0	110.0	3	B
10938	Pork, cured, ham, slice, bone-in, separable lean only, unheated	6.1	1.1	8.1	1.1	73.0	10.0	93.0	3	B
98095	Pork, fresh, enhanced, separable fat, cooked	2.0	1.3	8.0	0.5	28.0	8.5	46.0	4	B
98094	Pork, fresh, enhanced, separable fat, raw	1.7	2.0	6.9	0.6	19.0	5.5	34.0	4	B
10220	Pork, fresh, ground, cooked	4.7	3.0	16.0	0.7	59.0	8.2	87.0	4	A

## USDA Database for the Choline Content of Common Foods

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		mg/100g of food	mg choline moiety / 100 g of food							
10219	Pork, fresh, ground, raw	3.7	3.1	15.0	0.8	45.0	5.9	69.0	4	A
10061	Pork, fresh, loin, tenderloin, separable lean only, cooked, roasted	4.3	1.8	17.0	0.7	62.0	7.6	89.0	4	A
10060	Pork, fresh, loin, tenderloin, separable lean only, raw	3.0	1.6	24.0	0.6	49.0	6.1	81.0	4	A
10068	Pork, fresh, loin, top loin (chops), boneless, separable lean only, cooked, broiled	2.8	1.1	12.0	0.6	57.0	7.5	78.0	4	A
10066	Pork, fresh, loin, top loin (chops), boneless, separable lean only, raw	3.1	1.2	14.0	0.8	38.0	5.3	60.0	4	A
10007	Pork, fresh, separable fat, cooked	1.9	1.6	6.0	0.4	20.0	5.2	33.0	4	A
10006	Pork, fresh, separable fat, raw	2.4	1.5	5.7	0.6	14.0	3.6	25.0	4	A
10085	Pork, fresh, shoulder, (Boston butt), blade (steaks), separable lean only, cooked, braised	3.5	5.5	9.1	0.7	85.0	9.0	110.0	4	A
10084	Pork, fresh, shoulder, (Boston butt), blade (steaks), separable lean only, raw	4.1	5.4	11.0	1.0	55.0	6.0	79.0	4	A
10898	Pork, pickled pork hocks	1.1	1.2	3.5	0.3	34.0	18.0	58.0	1	B
<b>Vegetables and Vegetable Products</b>										
11001	Alfalfa seeds, sprouted, raw	0.4	11.0	0.6	1.8	1.0	0.0	14.0	1	B
11008	Artichokes, (globe or French), cooked, boiled, drained without salt	0.2	4.2	1.1	13.0	16.0	0.0	34.0	1	B
98010	Artichokes, microwaved	0.4	6.4	0.0	1.1	15.0	0.0	22.0	1	B
11012	Asparagus, cooked, boiled, drained	0.9	6.6	0.9	3.5	15.0	0.0	26.0	1	B
11011	Asparagus, raw	0.6	12.0	0.6	2.4	0.9	0.0	16.0	1	B
11061	Beans, snap, green, frozen, cooked, boiled, drained without salt	0.1	4.0	0.8	1.4	7.3	0.0	14.0	1	B
11084	Beets, canned, drained solids	260.0	0.3	0.6	1.1	5.4	0.0	7.5	2	B
11080	Beets, raw	130.0	4.1	0.6	0.9	0.4	0.0	6.0	1	B
11096	Broccoli raab, raw	0.3	12.0	0.0	6.4	0.2	0.1	18.0	2	B
11091	Broccoli, cooked, boiled, drained, without salt	0.1	8.5	1.3	9.3	21.0	0.0	40.0	1	B
11097	Broccoli, raab, cooked	0.2	4.3	2.4	13.0	14.0	0.0	34.0	5	A
11090	Broccoli, raw	0.1	18.0	0.0	0.4	0.1	0.1	19.0	2	B
11099	Brussels sprouts, cooked, boiled, drained, without salt	0.2	23.0	3.2	0.0	14.0	0.0	41.0	1	B
11110	Cabbage, cooked, boiled, drained, without salt	0.3	7.6	4.0	1.4	7.2	0.0	20.0	1	B
11109	Cabbage, raw	0.4	6.1	2.9	1.3	0.3	0.0	11.0	1	B

## USDA Database for the Choline Content of Common Foods

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		mg/100g of food	mg choline moiety / 100 g of food							
11113	Cabbage, red, cooked, boiled, drained, without salt	0.1	5.0	6.1	2.5	7.9	0.0	21.0	1	B
11112	Cabbage, red, raw	0.1	9.7	4.0	2.0	1.5	0.0	17.0	1	B
11125	Carrots, cooked, boiled, drained, without salt	0.1	0.4	0.4	1.1	6.8	0.0	8.8	1	B
11124	Carrots, raw	0.4	6.8	0.0	1.1	0.8	0.0	8.8	1	B
11960	Carrots, baby, raw	0.1	5.4	0.0	0.7	1.5	0.0	7.5	1	B
11935	Catsup	0.2	7.5	1.4	1.8	1.8	0.1	13.0	2	B
11136	Cauliflower, cooked, boiled, drained without salt	0.1	25.0	0.7	1.8	12.0	0.0	39.0	1	B
11143	Celery, raw	0.1	5.3	0.0	0.7	0.2	0.0	6.1	2	B
11179	Corn, sweet yellow, frozen, kernels cut of cob, boiled, drained, without salt	0.2	8.9	0.6	1.7	11.0	0.0	22.0	1	B
11206	Cucumber, peeled, raw	0.1	3.5	0.5	0.7	0.9	0.0	5.7	1	B
11205	Cucumber, with peel, raw	0.1	4.0	0.5	0.9	0.6	0.0	6.0	1	B
11212	Edamame, frozen, prepared	4.5	6.9	1.5	2.0	46.0	0.0	56.0	1	B
11211	Edamame, frozen, unprepared	0.7	9.2	0.3	4.0	43.0	0.0	56.0	1	B
11234	Kale, cooked, boiled, drained without salt	0.3	0.1	0.0	0.0	0.3	0.0	0.4	1	B
35196	Lambquarters, raw	330.0	13.0	0.3	1.9	4.5	0.0	20.0	1	B
11250	Lettuce, butterhead, raw	0.1	5.9	0.0	2.4	0.2	0.0	8.5	2	B
11251	Lettuce, cos or romaine, raw	0.1	7.6	0.0	1.6	0.7	0.0	9.9	3	B
11252	Lettuce, iceberg (includes crisphead types), raw	0.1	4.8	0.0	1.5	0.4	0.0	6.7	2	B
11257	Lettuce, red leaf, raw	0.2	7.9	0.0	3.4	0.5	0.0	12.0	1	B
11260	Mushrooms, raw	11.0	5.9	5.1	1.4	4.5	0.0	17.0	1	B
11282	Onions, raw	0.1	4.4	0.6	0.7	0.5	0.0	6.1	1	B
11294	Onions, sweet, raw	0.1	3.7	0.7	0.6	0.5	0.0	5.5	2	B
11286	Onions, yellow, sauted	0.1	3.4	0.6	0.6	1.9	0.0	6.5	1	B
11313	Peas, green, frozen, cooked, boiled, drained without salt	0.2	2.2	0.8	0.7	24.0	0.0	28.0	1	B
11333	Peppers, sweet, green, raw	0.1	3.6	0.0	1.2	0.7	0.0	5.6	1	B
11339	Peppers, sweet, green, sautéed	0.1	0.4	0.5	1.2	2.8	0.0	4.8	1	B
11821	Peppers, sweet, red, raw	0.1	4.0	0.5	1.0	0.0	0.0	5.6	1	B
11921	Peppers, sweet, red, sautéed	0.1	1.2	0.5	1.5	2.9	0.0	6.1	1	B
11937	Pickles, cucumber, dill or kosher dill	0.0	0.9	0.3	0.7	1.2	0.3	3.4	1	B
11940	Pickles, cucumber, sweet (includes bread and butter pickles)	0.3	0.9	0.7	0.7	0.7	0.2	3.1	1	B

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		mg/100g of food	mg choline moiety / 100 g of food							
11403	Potatoes, french fried, frozen, home prepared, heated in oven without salt	0.7	14.0	2.6	1.2	6.4	0.0	24.0	3	B
11402	Potatoes, french fried, frozen, unprepared	0.7	15.0	1.4	1.0	5.1	0.0	22.0	2	B
11657	Potatoes, mashed, home-prepared, whole milk added	0.4	8.4	1.3	0.8	3.9	0.0	14.0	1	B
11358	Potatoes, red, flesh and skin, baked	0.2	8.5	3.8	1.2	5.3	0.0	19.0	2	B
11355	Potatoes, red, flesh and skin, raw	0.2	9.7	5.7	0.8	0.2	0.0	16.0	3	B
11356	Potatoes, russet, flesh and skin, baked	0.2	8.1	1.6	0.7	4.6	0.0	15.0	3	A
11353	Potatoes, russet, flesh and skin, raw	0.2	10.0	1.7	0.7	0.1	0.0	13.0	1	B
11357	Potatoes, white, flesh and skin, baked	0.2	6.8	2.7	0.9	4.1	0.0	14.0	2	B
11354	Potatoes, white, flesh and skin, raw	0.2	7.9	2.6	0.3	0.3	0.0	11.0	2	B
11429	Radishes, raw	0.1	4.8	0.0	1.0	0.6	0.0	6.5	2	B
11439	sauerkraut, canned, solids and liquids	0.5	8.7	0.9	0.0	0.6	0.2	10.0	2	B
11464	Spinach, frozen, chopped or leaf, cooked, boiled, drained, without salt	110.0	1.7	0.0	1.1	22.0	0.0	25.0	2	B
11463	Spinach, frozen, chopped or leaf, unprepared	120.0	2.3	0.2	1.4	18.0	0.0	22.0	3	A
98013	Spinach, frozen, whole leaf, cooked, microwaved	130.0	2.2	0.0	1.8	24.0	0.0	28.0	2	B
11478	Squash, summer zucchini, includes skin, cooked, boiled, drained, without salt	0.3	0.5	0.7	2.4	5.7	0.0	9.4	1	B
11644	Squash, winter, all varieties, cooked, baked without salt	0.2	2.1	0.6	2.6	5.3	0.0	11.0	1	B
11508	Sweet potato, cooked, baked in skin, without salt	35.0	0.9	2.0	2.6	7.7	0.0	13.0	2	B
11546	Tomato products, canned, paste, without salt added	0.4	26.0	1.7	4.3	6.2	0.1	39.0	1	B
11549	Tomato products, canned, sauce	0.8	6.5	0.8	1.6	1.0	0.0	9.9	1	B
98011	Tomatoes, red, cooked, microwaved	0.1	4.4	0.0	1.9	1.8	0.0	8.0	2	B
11529	Tomatoes, red, ripe, raw, year round average	0.1	4.4	0.0	1.8	0.5	0.0	6.7	2	B
<b>Nuts and Seed Products</b>										
12061	Nuts, almonds	0.5	9.4	1.2	1.9	40.0	0.0	52.0	5	A
12078	Nuts, brazil nuts, dried, unblanched	0.4	16.0	1.0	0.3	11.0	0.0	29.0	2	B
12586	Nuts, cashew nuts, oil roasted, with salt added	11.0	20.0	3.3	0.9	37.0	0.0	61.0	5	A
12109	Nuts, coconut meat, dried (desiccated), sweetened, flaked, packaged	1.3	9.7	2.8	2.8	4.0	0.0	19.0	1	B
12118	Nuts, coconut milk, canned (liquid expressed from grated meat and water)	0.0	5.1	0.6	0.6	2.2	0.1	8.5	1	C

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		mg/100g of food	mg choline moiety / 100 g of food							
12120	Nuts, hazelnuts or filberts	0.4	15.0	5.0	0.9	25.0	0.0	46.0	5	A
12632	Nuts, macadamia nuts, dry roasted, with salt added	0.3	11.0	1.8	1.1	30.0	0.0	45.0	5	A
12142	Nuts, pecans	0.7	9.7	6.1	1.3	23.0	0.0	41.0	5	A
12147	Nuts, pine nuts, dried	0.4	8.4	0.7	2.1	45.0	0.0	56.0	5	A
12652	Nuts, pistachio nuts, dry roasted, with salt added	0.8	11.0	1.7	8.5	51.0	0.0	71.0	8	A
12154	Nuts, walnuts, black, dried	0.6	8.3	7.4	0.6	16.0	0.0	32.0	1	B
12155	Nuts, walnuts, english	0.3	7.3	10.0	0.8	21.0	0.0	39.0	5	A
12220	Seeds, flaxseed	3.1	39.0	3.1	0.6	36.0	0.0	79.0	1	B
98014	Seeds, psyllium seed, husk powder ( dietary fiber supplement)	2.9	5.2	0.9	0.0	2.5	0.0	8.6	1	B
12516	Seeds, pumpkin and squash seed kernels, roasted, with salt added	1.5	40.0	0.9	2.3	20.0	0.7	63.0	1	C
12663	Seeds, pumpkin and squash seeds, whole, roasted, with salt added	0.3	13.0	3.6	3.8	18.0	0.4	39.0	1	C
12201	Seeds, sesame seed kernels, dried (decorticated)	0.7	9.6	3.1	2.8	10.0	0.0	26.0	1	B
12036	Seeds, sunflower seed kernels, dried	35.0	18.0	5.6	1.3	29.0	0.7	55.0	2	B
<b>Beef and Beef Products</b>										
23035	Beef, chuck, shoulder clod, shoulder tender, medallion, separable lean and fat, trimmed to 0" fat, choice, cooked, grilled	14.0	0.7	5.5	1.5	84.0	11.0	100.0	1	B
23034	Beef, chuck, shoulder clod, shoulder tender, medallion, separable lean and fat, trimmed to 0" fat, choice, raw	12.0	1.0	6.1	1.5	59.0	7.2	75.0	1	B
23065	Beef, chuck, shoulder clod, shoulder tender, medallion, separable lean and fat, trimmed to 0" fat, select, cooked, grilled	13.0	0.7	7.8	1.4	91.0	12.0	110.0	1	B
23036	Beef, chuck, shoulder clod, shoulder tender, medallion, separable lean and fat, trimmed to 0" fat, select, raw	12.0	0.9	9.3	1.5	65.0	8.5	85.0	1	B
23038	Beef, chuck, shoulder clod, shoulder top and center steaks, steak, separable lean and fat, trimmed to 0" fat, choice, cooked, grilled	16.0	0.6	4.5	1.1	77.0	11.0	94.0	1	B
23037	Beef, chuck, shoulder clod, shoulder top and center steaks, steak, separable lean and fat, trimmed to 0" fat, choice, raw	15.0	0.8	5.1	1.2	71.0	7.1	85.0	1	B
23040	Beef, chuck, shoulder clod, shoulder top and center steaks, steak, separable lean and fat, trimmed to 0" fat, select, cooked, grilled	13.0	0.7	5.2	1.3	86.0	11.0	100.0	1	B



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		mg/100g of food	mg choline moiety / 100 g of food							
23039	Beef, chuck, shoulder clod, shoulder top and center steaks, steak, separable lean and fat, trimmed to 0" fat, select, raw	12.0	1.0	5.8	1.2	72.0	7.0	87.0	1	B
23042	Beef, chuck, shoulder clod, top blade, steak, separable lean and fat, trimmed to 0" fat, choice, cooked, grilled	17.0	1.6	4.3	1.9	83.0	12.0	100.0	1	B
23041	Beef, chuck, shoulder clod, top blade, steak, separable lean and fat, trimmed to 0" fat, choice, raw	15.0	1.9	4.9	1.7	68.0	6.2	83.0	1	B
23044	Beef, chuck, shoulder clod, top blade, steak, separable lean and fat, trimmed to 0" fat, select, cooked, grilled	12.0	1.7	4.0	1.9	94.0	11.0	110.0	1	B
23043	Beef, chuck, shoulder clod, top blade, steak, separable lean and fat, trimmed to 0" fat, select, raw	12.0	2.2	5.7	1.5	86.0	7.4	100.0	1	B
98096	Beef, grass-fed, ground, raw	7.8	1.0	3.2	0.9	55.0	6.7	67.0	13	A
98097	Beef, grass-fed, short loin, top loin, separable lean only, 0" trim, raw	7.6	0.6	3.4	0.6	54.0	6.3	65.0	11	A
13497	Beef, ground, 70% lean meat/ 30% fat, patty, cooked, broiled	10.0	2.3	2.4	0.3	65.0	8.3	78.0	1	A
13498	Beef, ground, 70% lean meat/ 30% fat, raw	8.5	2.6	2.4	0.5	36.0	5.1	47.0	1	A
23578	Beef, ground, 75% lean meat/ 25% fat, patty, cooked, broiled	8.5	2.3	2.6	0.3	66.0	8.2	79.0	1	A
23577	Beef, ground, 75% lean meat/ 25% fat, raw	7.4	2.6	2.6	0.4	41.0	5.4	52.0	1	A
23573	Beef, ground, 80% lean meat/ 20% fat, patty, cooked, broiled	8.0	2.3	2.8	0.3	68.0	8.0	81.0	1	A
23572	Beef, ground, 80% lean meat/ 20% fat, raw	7.3	2.6	2.8	0.4	45.0	5.6	56.0	1	A
23567	Beef, ground, 85% lean meat/ 15% fat, raw	7.2	2.6	3.0	0.3	50.0	5.8	61.0	1	A
23568	Beef, ground, 85% lean meat/ 15% fat, patty, cooked, broiled	7.5	2.2	3.0	0.3	69.0	7.9	82.0	1	A
23562	Beef, ground, 90% lean meat/ 10% fat, raw	7.0	2.5	3.2	0.3	54.0	6.1	66.0	1	A
23563	Beef, ground, 90% lean meat/ 10% fat, patty, cooked, broiled	7.1	2.2	3.1	0.3	71.0	7.7	84.0	1	A
23557	Beef, ground, 95% lean meat/ 5% fat, raw	6.9	2.5	3.3	0.2	59.0	6.3	71.0	1	A
23558	Beef, ground, 95% lean meat/ 5% fat, patty, cooked, broiled	6.6	2.2	3.3	0.4	72.0	7.6	85.0	1	A
23046	Beef, round, knuckle, tip center, steak, separable lean and fat, trimmed to 0" fat, choice, cooked, grilled	16.0	0.5	4.2	1.1	87.0	11.0	100.0	1	B
23045	Beef, round, knuckle, tip center, steak, separable lean and fat, trimmed to 0" fat, choice, raw	17.0	0.6	6.4	1.6	65.0	7.5	81.0	1	B
23048	Beef, round, knuckle, tip center, steak, separable lean and fat, trimmed to 0" fat, select, cooked, grilled	13.0	0.5	5.0	1.2	87.0	12.0	100.0	1	B
23047	Beef, round, knuckle, tip center, steak, separable lean and fat, trimmed to 0" fat, select, raw	13.0	0.6	5.2	1.0	71.0	8.1	86.0	1	B

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		mg/100g of food	mg choline moiety / 100 g of food							
23032	Beef, round, knuckle, tip side, steak, separable lean and fat , trimmed to 0" fat, select, raw	8.1	0.9	5.7	0.9	76.0	7.9	91.0	1	B
23031	Beef, round, knuckle, tip side, steak, separable lean and fat, trimmed to 0" fat, choice, cooked, grilled	17.0	0.4	4.0	1.0	87.0	11.0	100.0	1	B
23030	Beef, round, knuckle, tip side, steak, separable lean and fat, trimmed to 0" fat, choice, raw	12.0	0.8	4.8	1.0	72.0	7.7	87.0	1	B
23033	Beef, round, knuckle, tip side, steak, separable lean and fat, trimmed to 0" fat, select, cooked, grilled	6.9	0.5	4.5	0.9	82.0	14.0	100.0	1	B
23050	Beef, round, outside round, bottom round, steak, separable lean and fat, trimmed to 0" fat, choice, cooked, grilled	11.0	0.5	4.6	0.8	77.0	12.0	94.0	1	B
23049	Beef, round, outside round, bottom round, steak, separable lean and fat, trimmed to 0" fat, choice, raw	15.0	0.8	4.7	1.0	70.0	7.2	84.0	1	B
23052	Beef, round, outside round, bottom round, steak, separable lean and fat, trimmed to 0" fat, select, cooked, grilled	12.0	0.5	5.9	0.9	72.0	12.0	92.0	1	B
23051	Beef, round, outside round, bottom round, steak, separable lean and fat, trimmed to 0" fat, select, raw	11.0	0.9	5.8	0.7	77.0	7.0	91.0	1	B
13326	Beef, variety meats and by-products, liver, cooked, braised	5.6	62.0	83.0	12.0	250.0	24.0	430.0	4	A
13327	Beef, variety meats and by-products, liver, cooked, pan-fried	6.3	57.0	78.0	12.0	250.0	24.0	420.0	4	A
13325	Beef, variety meats and by-products, liver, raw	4.4	56.0	85.0	12.0	170.0	14.0	330.0	4	A
<b>Beverages</b>										
14006	Alcoholic beverage, beer, light	6.3	5.5	2.5	0.0	0.0	0.0	7.9	2	B
14003	Alcoholic beverage, beer, regular	8.1	5.7	4.2	0.0	0.0	0.0	9.9	2	B
14106	Alcoholic beverage, wine table, white	0.2	3.4	1.4	0.0	0.0	0.0	4.7	2	B
14096	Alcoholic beverage, wine, table, red	0.3	4.5	1.1	0.0	0.0	0.0	5.7	1	B
14400	Carbonated beverage, cola, contains caffeine	0.1	0.0	0.4	0.0	0.0	0.0	0.4	4	B
14416	Carbonated beverage, low calorie, cola or pepper-type, with aspartame, contains caffeine	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2	B
14150	Carbonated beverage, orange	0.1	0.0	0.6	0.0	0.0	0.0	0.6	1	B
14209	Coffee, brewed from grounds, prepared with tap water	0.1	1.9	0.7	0.0	0.0	0.0	2.6	3	A
14218	Coffee, instant, decaffeinated, powder	0.7	94.0	8.2	0.0	0.0	0.0	100.0	1	B
14242	Cranberry juice cocktail, bottled	0.1	0.4	0.7	0.0	0.0	0.0	1.1	1	B
98015	Iced tea, fast food, unsweetened	1.0	0.4	0.0	0.0	0.0	0.0	0.4	1	B
14287	Lemonade mix, sugar sweetened	0.7	0.1	0.0	0.0	0.0	0.0	0.1	1	B
14542	Lemonade, frozen concentrate, sugar sweetened, pink	0.1	0.4	0.6	0.0	1.0	0.0	1.9	1	B

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14292	Lemonade, frozen concentrate, sugar sweetened, white	0.4	0.4	0.6	0.1	0.9	0.0	2.0	1	B
14347	Shake, fast food, vanilla	1.2	3.9	9.3	1.4	4.4	2.6	22.0	2	B
<b>Finfish and Shellfish Products</b>										
15138	Crab, Alaska king, imitation, made with surimi	1.8	0.8	0.5	0.2	11.0	0.3	13.0	1	B
15152	Crustacean, shrimp, mixed species, canned	23.0	1.5	4.9	0.8	67.0	6.6	81.0	2	B
15141	Crustaceans, crab, blue canned	13.0	0.1	2.5	0.3	26.0	4.4	34.0	1	B
15016	Fish, cod, Atlantic, cooked, dry heat	9.7	18.0	30.0	1.6	33.0	1.4	84.0	1	B
15027	Fish, fish portions and sticks, frozen, preheated	45.0	7.7	13.0	0.7	13.0	1.7	36.0	5	B
15232	Fish, roughy, orange, cooked, dry heat	3.1	18.0	9.3	2.3	17.0	2.4	49.0	2	B
15073	Fish, roughy, orange, raw	2.1	14.0	3.6	2.2	13.0	1.8	35.0	2	B
15237	Fish, salmon, Atlantic, farmed, cooked, dry heat	1.8	7.8	41.0	1.2	37.0	3.4	91.0	1	B
15236	Fish, salmon, Atlantic, farmed, raw	3.0	9.9	43.0	1.0	22.0	3.0	79.0	1	B
15260	Fish, salmon, pink, canned, drained solids with bone	9.0	4.3	28.0	0.6	52.0	2.5	88.0	4	B
15087	Fish, salmon, sockeye, canned, drained solids with bone	3.7	4.0	31.0	0.8	44.0	2.1	83.0	3	B
15086	Fish, salmon, sockeye, cooked, dry heat	2.1	8.6	5.9	1.1	48.0	1.8	66.0	1	B
15262	Fish, tilapia, cooked, dry heat	25.0	21.0	1.2	2.5	54.0	4.1	83.0	1	B
15261	Fish, tilapia, raw	22.0	8.1	0.7	1.4	30.0	2.7	43.0	3	B
15121	Fish, tuna, light, canned in water, drained solids	2.7	2.1	5.9	0.0	18.0	2.9	29.0	1	B
<b>Legume and Legume Products</b>										
16006	Beans, baked, canned, plain or vegetarian	0.1	17.0	1.3	0.8	12.0	0.0	32.0	1	B
98019	Beans, baked, canned, plain or vegetarian, heated	0.1	14.0	1.8	0.9	11.0	0.0	28.0	1	B
16010	Beans, baked, canned, with pork and sweet sauce	0.1	13.0	1.6	0.9	9.2	0.0	25.0	1	B
16011	Beans, baked, canned, with pork and tomato sauce	0.4	25.0	1.6	1.0	12.0	0.0	39.0	2	B
98020	Beans, baked, canned, with pork and tomato sauce, heated	0.1	11.0	1.6	0.9	11.0	0.0	24.0	1	B
16034	Beans, kidney, red, mature seeds, canned	0.1	17.0	2.1	0.6	13.0	0.0	33.0	2	B
16039	Beans, navy, mature seeds, canned	0.1	14.0	0.8	0.6	12.0	0.0	27.0	2	B
16038	Beans, navy, mature seeds, cooked, boiled, without salt	0.1	21.0	1.9	0.0	22.0	0.0	45.0	1	B
16037	Beans, navy, mature seeds, raw	0.1	50.0	4.5	0.0	33.0	0.0	87.0	1	B
16043	Beans, pinto, mature seeds, cooked, boiled without salt	0.1	11.0	1.4	0.2	22.0	0.0	35.0	4	A

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		mg/100g of food	mg choline moiety / 100 g of food							
16042	Beans, pinto, mature seeds, raw	0.4	32.0	2.9	0.8	31.0	0.0	66.0	1	B
43133	Burgers, soy protein, frozen	5.0	9.9	1.8	0.4	2.2	0.0	14.0	1	B
16097	Peanut butter, chunk style, with salt	1.0	25.0	1.3	2.2	33.0	0.0	61.0	3	A
16098	Peanut butter, smooth style with salt	0.4	26.0	1.1	0.7	38.0	0.0	66.0	2	B
16399	Peanut butter, with omega-3, creamy	0.6	39.0	1.0	1.8	53.0	0.0	95.0	1	C
16087	Peanuts, all types, raw	0.6	18.0	1.3	1.8	32.0	0.0	53.0	4	A
16117	Soy flour, defatted	2.8	120.0	7.0	1.5	63.0	0.8	190.0	2	B
16120	Soy milk, fluid	0.8	13.0	1.3	3.5	5.7	0.0	24.0	1	B
98021	Soy protein powder, dietary supplement, cholesterol free, low fat enriched with vitamins	0.2	15.0	1.1	0.0	70.0	0.0	86.0	1	B
16123	Soy sauce made from soy and wheat (shoyu)	30.0	18.0	0.2	0.3	0.0	0.0	18.0	1	B
16108	Soybeans, mature seeds, raw	2.1	47.0	2.9	1.1	65.0	0.0	120.0	2	C
16126	Tofu, firm, prepared with calcium sulfate and magnesium chloride (nigari)	0.4	8.3	0.6	0.0	19.0	0.0	28.0	1	B
16127	Tofu, soft, prepared with calcium sulfate and magnesium chloride (nigari)	0.4	9.7	0.7	0.0	17.0	0.0	27.0	1	B
16147	Veggie burgers, unprepared	6.1	13.0	1.1	0.2	4.6	0.5	19.0	2	B
<b>Lamb, Veal and Game</b>										
98022	Mutton, roasted from mutton sandwich	34.0	1.7	9.9	0.6	81.0	7.9	100.0	1	B
17203	Veal, variety meats and by-products, liver, cooked, braised	9.8	89.0	55.0	6.7	220.0	28.0	400.0	2	B
17204	Veal, variety meats and by-products, liver, cooked, pan-fried	8.1	93.0	57.0	9.7	220.0	27.0	410.0	2	B
17202	Veal, variety meats and by-products, liver, raw	7.6	85.0	64.0	11.0	130.0	17.0	310.0	2	B
<b>Baked Products</b>										
18001	Bagels, plain, enriched, with calcium propionate (includes onion, poppy, sesame)	20.0	7.7	1.9	0.3	5.5	0.0	15.0	2	B
18002	Bagels, plain, toasted, enriched, with calcium propionate (includes onion, poppy, sesame)	22.0	8.6	2.0	0.3	5.6	0.0	16.0	2	B
18009	Biscuits, plain or buttermilk, commercially baked	43.0	6.9	1.3	0.6	0.2	0.0	8.9	1	B
18012	Biscuits, plain or buttermilk, refrigerated dough, lower fat	42.0	16.0	1.7	0.0	0.4	1.0	19.0	1	B
18013	Biscuits, plain or buttermilk, refrigerated dough, lower fat, baked	45.0	17.0	0.9	0.3	0.6	0.9	20.0	1	B

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		mg/100g of food	mg choline moiety / 100 g of food							
18029	Bread, french or vienna (includes sourdough)	55.0	6.9	3.4	0.4	4.1	0.0	15.0	1	B
18030	Bread, french or vienna, toasted (includes sourdough)	59.0	8.8	3.2	0.4	5.1	0.0	18.0	1	B
18064	Bread, wheat, (includes wheat berry)	85.0	12.0	3.8	0.3	3.1	0.0	19.0	1	B
18065	Bread, wheat, toasted (includes wheat berry)	92.0	14.0	3.6	0.3	4.0	0.0	22.0	1	B
18069	Bread, white, commercially prepared, (includes soft bread crumbs)	31.0	8.6	3.7	0.1	2.3	0.0	15.0	2	B
18075	Bread, whole-wheat, commercially prepared	38.0	18.0	4.9	0.3	3.3	0.0	27.0	2	B
18101	Cake, chocolate, dry mix, regular, prepared	48.0	5.4	61.0	0.6	59.0	2.9	130.0	1	B
18452	Cake, snack cakes, cupcakes, chocolate, with frosting, low-fat	22.0	5.0	10.0	0.6	4.4	0.3	21.0	1	B
18141	Cake, yellow, commercially prepared, with vanilla frosting	19.0	4.6	1.3	0.0	29.0	1.5	36.0	1	B
18159	Cookies, chocolate chip, commercially prepared, reg, higher fat, enriched	43.0	8.9	1.4	0.5	6.2	0.0	17.0	1	B
18173	Cookies, graham crackers, plain or honey (includes cinnamon)	39.0	13.0	3.6	0.4	5.2	0.0	22.0	5	B
18927	Crackers, cheese, sandwich-type with cheese filling	41	6.7	15.0	1.3	4.4	0.0	28.0	1	B
18215	Crackers, cheese, sandwich-type with peanut butter filling	34	11.0	2.8	0.8	11.0	0.0	25.0	1	B
18228	Crackers, saltines (includes oyster, soda, soup)	55.0	13.0	6.3	0.0	0.7	0.0	20.0	1	B
18229	Crackers, standard snack-type, regular	52.0	8.2	3.9	0.0	1.7	0.0	14.0	1	B
18232	Crackers, wheat, regular	58.0	19.0	3.4	0.5	3.5	1.1	27.0	6	B
18246	Danish pastry, fruit enriched (includes apple, cinnamon, raisin, lemon, raspberry, strawberry)	14.0	8.7	2.2	0.7	9.6	0.7	22.0	4	B
18248	Doughnuts, cake-type, plain (includes un-sugared, old-fashioned)	38.0	4.9	3.0	0.6	28.0	1.1	37.0	1	B
18249	Doughnuts, cake-type, plain, chocolate-coated or frosted	27.0	5.4	1.9	0.6	20.0	0.8	29.0	1	B
18258	English muffins, plain, enriched, with ca prop (includes sourdough)	33.0	5.2	5.7	0.0	2.7	0.0	14.0	1	B
18259	English muffins, plain, toasted, enriched, with calcium propionate (includes sourdough)	36.0	6.4	6.9	0.0	2.5	0.0	16.0	1	B
18262	English muffins, raisin-cinnamon (includes apple-cinnamon)	28.0	4.9	4.5	0.2	3.0	0.0	13.0	1	B
18263	English muffins, raisin-cinnamon, toasted (includes apple-cinnamon)	32.0	6.3	5.4	0.2	2.6	0.0	15.0	1	B
18375	Leavening agents, yeast, baker's, active dry	3.4	6.1	16.0	2.6	6.2	1.2	32.0	1	C
18274	Muffins, blueberry, commercially prepared	22.0	3.9	3.6	0.7	41.0	2.2	52.0	1	B

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18273	Muffins, plain, prepared from recipe, made with low fat (2%) milk	92.0	15.0	2.9	0.7	24.0	1.4	43.0	1	B
98116	Muffins, wheat bran, prepared from recipe	36.0	8.1	3.0	0.7	20.0	4.3	36.0	2	B
18290	Pancakes, plain, dry mix, complete, prepared	26.0	5.5	1.5	0.0	11.0	0.9	19.0	1	B
18288	Pancakes, plain, frozen, ready-to-heat (includes buttermilk)	72.0	3.5	15.0	0.8	9.8	1.3	31.0	1	B
18936	Pancakes, plain, frozen, ready-to-heat, microwave (includes buttermilk)	69.0	4.1	12.0	0.9	9.9	1.3	28.0	2	B
18301	Pie, apple, commercially prepared, enriched flour	16.0	4.7	1.0	0.0	1.5	0.0	7.2	1	B
98024	Plain danish pastry	8.1	3.0	2.7	0.6	9.4	1.0	17.0	1	B
18360	Taco shells, baked	0.6	8.1	3.3	2.7	16.0	0.0	30.0	1	B
18939	Toaster Pastries, fruit, toasted	22.0	4.5	1.5	0.9	2.3	0.0	9.2	1	B
18489	Toaster Pastries, KELLOGG, KELLOGG 's pop tarts, frosted strawberry	20.0	3.6	1.5	0.0	2.7	0.0	7.8	1	B
18488	Toaster Pastries, KELLOGG, KELLOGG 's pop tarts, strawberry	21.0	4.0	1.6	0.6	2.1	0.0	8.4	1	B
98026	Toaster Pastries, strawberry, frosted, toasted	19.0	3.8	1.6	0.0	2.2	0.0	7.6	1	B
18363	Tortillas, ready-to-bake or -fry, corn	0.4	4.1	2.4	0.2	6.5	0.0	13.0	1	B
18364	Tortillas, ready-to-bake or -fry, flour	5.3	4.6	1.5	0.2	1.7	0.0	7.9	1	B
<b>Sugars and Sweets</b>										
19078	Baking chocolate, unsweetened, squares	2.6	34.0	0.9	0.0	11.0	0.0	46.0	1	B
19076	Candies, caramels, chocolate-flavor roll	1.4	6.2	5.0	2.9	4.3	0.3	19.0	1	B
19141	Candies, MASTERFOODS USA, M&M's Milk Chocolate Candies	0.8	9.1	3.9	2.0	5.7	1.1	22.0	2	B
19120	Candies, milk chocolate	2.6	9.1	22.0	2.3	11.0	1.9	46.0	1	B
98031	Candies, milk chocolate coated wafer bars	6.1	7.9	16.0	0.0	6.3	0.7	31.0	1	B
98033	Candies, milk chocolate coated, caramel and nougat bars with peanuts	0.9	12.0	11.0	1.7	13.0	0.7	38.0	2	B
98032	Candies, milk chocolate pieces, sugar coated	1.3	9.6	22.0	3.1	7.5	1.3	44.0	1	B
19226	Frostings, chocolate, creamy, ready-to-eat	2.2	5.6	0.0	0.0	1.3	0.0	6.9	1	B
19230	Frostings, vanilla, creamy, ready-to-eat	2.6	0.8	0.0	0.0	1.5	0.0	2.3	1	B
42187	Frozen yogurts, flavors other than chocolate	0.9	5.1	9.2	2.1	4.8	1.8	23.0	1	B
98034	Frozen yogurts, vanilla, fat free	0.8	3.7	13.0	1.1	3.7	1.2	23.0	1	B

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98029	Gelatin desserts, strawberry flavor, with fruit juice, ready-to-eat	0.8	0.1	0.5	0.0	0.0	0.0	0.6	1	B
98028	Gelatin desserts, strawberry flavor, ready-to-eat	0.1	0.0	0.5	0.0	0.0	0.0	0.5	1	B
19296	Honey	1.7	1.2	0.7	0.1	0.1	0.0	2.2	1	B
19270	Ice creams, chocolate	0.6	5.1	11.0	0.7	3.8	2.0	23.0	1	B
19095	Ice creams, vanilla	1.1	4.8	13.0	1.8	3.6	2.6	26.0	1	B
98030	Ice creams, vanilla and sherbet, orange	0.6	1.8	6.2	1.6	3.3	2.7	16.0	2	B
98035	Ice creams, vanilla, fat free, no sugar added	0.8	2.7	10.0	1.9	1.2	1.3	18.0	1	B
19297	Jams and preserves, includes fruit spreads	0.1	2.6	6.7	0.5	0.4	0.0	10.0	3	B
19304	Molasses	1.0	10.0	1.0	1.3	0.7	0.0	13.0	1	B
19183	Puddings, chocolate, ready-to-eat	0.9	4.3	3.6	0.8	0.7	0.0	9.5	2	B
19334	Sugars, brown	0.3	2.2	0.3	0.1	0.0	0.0	2.5	2	B
<b>Cereal Grains and Pastas</b>										
20001	Amaranth	68.0	37.0	6.8	0.2	25.0	0.7	70.0	1	C
20131	Barley malt flour	66.0	4.9	2.4	0.9	30.0	0.0	38.0	1	B
20010	Buckwheat groats, roasted, cooked	0.5	11.0	0.8	0.7	7.6	0.0	20.0	1	B
20009	Buckwheat groats, roasted, dry	2.6	32.0	1.1	0.7	21.0	0.4	54.0	1	C
20013	Bulgur wheat, cooked	83.0	2.7	0.8	0.7	2.7	0.0	6.9	1	B
08231	Cereals, QUAKER, Oat Bran, QUAKER/MOTHER'S Oat Bran, dry	36.0	4.4	33.0	0.7	20.0	0.0	59.0	1	B
20015	Corn bran, crude	4.6	15.0	0.6	0.3	2.2	0.2	18.0	1	C
20317	Corn flour, masa, enriched, yellow	2.0	1.9	0.2	0.1	1.4	0.7	4.3	1	B
20022	Cornmeal, degermed, enriched, yellow	0.4	6.4	1.3	0.1	2.5	0.5	11.0	2	B
20020	Cornmeal, whole-grain, yellow	12.0	11.0	2.0	0.3	6.5	1.9	22.0	1	C
20138	Kamut, uncooked	110.0	5.9	1.4	0.4	16.0	1.8	26.0	1	C
20110	Noodles, egg, cooked, enriched	19.0	9.3	0.9	0.0	16.0	0.0	26.0	1	B
20109	Noodles, egg, dry, enriched	130.0	50.0	2.3	0.0	26.0	0.0	79.0	1	B
20033	Oat bran, raw	20.0	4.9	6.2	0.3	18.0	3.0	32.0	2	B
20038	Oat flour, whole grain	31.0	5.0	4.3	0.3	18.0	2.5	30.0	1	C
20035	Quinoa	630.0	38.0	14.0	0.4	17.0	0.7	70.0	1	B
20037	Rice, brown, long-grain, cooked	0.5	4.7	1.2	0.0	3.4	0.0	9.2	1	B

## USDA Database for the Choline Content of Common Foods

NDB No <sup>1</sup>	Description	Betaine <sup>2</sup>	Free Cho <sup>2</sup>	GPC <sup>2</sup>	Pcho <sup>2</sup>	Ptdcho <sup>2</sup>	SM <sup>2</sup>	Total Cho <sup>3</sup>	N	CC <sup>4</sup>
		mg/100g of food	mg choline moiety / 100 g of food							
20045	Rice, white, long grain, regular, cooked	0.3	0.7	1.0	0.0	0.4	0.0	2.1	2	B
20063	Rye flour, dark	150.0	8.3	5.8	0.6	14.0	1.6	30.0	1	C
20121	Spaghetti, cooked, enriched, without added salt	68.0	3.5	0.8	0.0	2.2	0.0	6.4	2	B
20120	Spaghetti, dry, enriched	140.0	9.7	1.4	0.0	4.0	0.0	15.0	2	B
20142	Teff, uncooked	2.3	7.3	1.4	0.2	4.0	0.2	13.0	1	C
20081	Wheat flour, white, all purpose, enriched, bleached	70.0	5.7	1.5	0.1	3.2	0.0	10.0	2	B
20080	Wheat flour, whole-grain	73.0	13.0	2.2	0.5	13.0	2.9	31.0	2	B
<b>Fast Foods</b>										
21299	Fast food, pizza chain, 14" pizza, cheese topping, regular crust	28.0	5.9	2.5	0.6	5.2	2.3	16.0	8	A
21300	Fast food, pizza chain, 14" pizza, cheese topping, thick crust	27.0	6.0	2.5	0.6	5.1	2.4	17.0	7	A
21301	Fast food, pizza chain, 14" pizza, cheese topping, thin crust	20.0	8.8	2.6	1.0	5.1	1.5	19.0	3	B
21304	Fast food, pizza chain, 14" pizza, meat and vegetable topping, regular crust	24.0	8.3	2.0	0.7	9.4	1.3	22.0	4	B
21302	Fast food, pizza chain, 14" pizza, pepperoni topping, regular crust	26.0	10.0	2.1	0.5	10.0	2.7	25.0	7	A
21411	Fast foods, bagel with breakfast steak, egg, cheese and condiments	10.0	4.0	2.0	0.5	71.0	4.7	82.0	1	B
21410	Fast foods, bagel with egg, sausage patty, cheese, and condiments	8.7	3.9	2.6	0.5	72.0	4.4	84.0	1	B
21409	Fast foods, bagel with ham, egg and cheese	11.0	3.7	2.7	0.5	87.0	4.7	98.0	1	B
21005	Fast foods, biscuit with egg and sausage	7.3	2.5	2.8	0.5	87.0	5.3	98.0	1	B
21007	Fast foods, biscuit with egg, cheese and bacon	11.0	2.2	2.9	0.7	110.0	6.1	130.0	1	B
21009	Fast foods, biscuit with sausage	9.1	3.2	3.1	0.4	18.0	2.0	27.0	1	B
21060	Fast foods, burrito with beans	15.0	16.0	1.0	0.0	9.5	0.0	27.0	1	B
21064	Fast foods, burritos with beans, cheese and beef	12.0	16.0	0.8	0.9	9.8	0.8	28.0	1	B
21100	Fast foods, cheeseburger, large, double patty, with condiments and vegetables	30.0	5.4	6.2	1.0	23.0	3.6	39.0	3	A
21098	Fast foods, cheeseburger, large, single patty with condiments and vegetables	12.0	3.1	2.6	1.2	19.0	2.9	29.0	1	B
98056	Fast foods, chicken breast fillet	18.0	3.6	2.1	1.5	24.0	3.6	35.0	1	B
21102	Fast foods, chicken fillet sandwich, plain	29.0	5.5	4.2	1.0	21.0	3.2	35.0	3	A
21401	Fast foods, chicken tenders	17.0	2.7	1.4	0.9	34.0	4.9	44.0	3	B



## USDA Database for the Choline Content of Common Foods

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		mg/100g of food	mg choline moiety / 100 g of food							
21229	Fast foods, chicken, breaded and fried, boneless pieces, plain	16.0	3.1	1.7	1.2	29.0	5.3	41.0	5	A
98063	Fast foods, chocolate, dairy dessert	1.1	5.5	15.0	1.2	3.4	2.6	28.0	1	B
21011	Fast foods, croissant with egg and cheese	10.0	3.2	4.8	0.4	80.0	4.2	92.0	1	B
21014	Fast foods, croissant with egg, cheese and sausage	8.4	3.4	3.7	0.7	72.0	4.6	84.0	1	B
98051	Fast foods, croissant with sausage and cheese	11.0	4.8	4.0	0.6	24.0	3.0	36.0	1	B
98052	Fast foods, english muffin with bacon, egg and cheese	13.0	3.3	2.1	0.4	50.0	2.8	59.0	1	B
21020	Fast foods, english muffin with cheese and sausage	19.0	4.5	3.1	0.4	19.0	2.6	30.0	1	B
98080	Fast foods, english muffin with egg	13.0	3.0	2.3	0.4	120.0	5.6	130.0	1	B
21022	Fast foods, english muffin with egg, cheese and sausage	10.0	2.9	2.6	0.5	92.0	4.9	100.0	1	B
21106	Fast foods, fish sandwich, with tartar sauce and cheese	98.0	7.4	11.0	0.5	12.0	1.2	33.0	2	B
98058	Fast foods, flour tortilla with beans, chicken and cheese	15.0	8.9	1.2	0.8	9.2	0.9	21.0	1	B
98059	Fast foods, flour tortilla with beans, steak and cheese	15.0	12.0	0.8	0.6	12.0	1.1	27.0	1	B
98060	Fast foods, flour tortilla with beef and cheese	18.0	11.0	1.2	0.9	11.0	1.5	26.0	1	B
98061	Fast foods, flour tortilla with chicken and cheese	19.0	7.5	1.3	1.3	15.0	2.0	27.0	1	B
98047	Fast foods, flour tortilla with sausage, egg, cheese and condiments	13.0	4.6	2.1	0.5	74.0	4.1	86.0	1	B
98062	Fast foods, flour tortilla with steak and cheese	19.0	7.7	0.6	0.6	18.0	2.4	29.0	1	B
21024	Fast foods, french toast sticks	20.0	6.4	2.3	0.0	5.1	0.2	14.0	1	B
98055	Fast foods, fried chicken sandwich	44.0	8.9	5.5	0.7	19.0	2.5	36.0	1	B
21114	Fast foods, hamburger, large double patty with condiments and vegetables	46.0	9.5	5.7	0.8	21.0	3.1	41.0	2	B
21202	Fast foods, hamburger, large, single patty, with condiments	22.0	5.0	2.7	0.9	22.0	3.0	33.0	3	A
21107	Fast foods, hamburger, regular, single patty, plain	41.0	5.6	5.6	0.8	20.0	2.6	34.0	6	A
98050	Fast foods, hotcakes with syrup and sausage	6.2	5.0	4.5	0.9	22.0	1.8	34.0	1	B
21388	Fast foods, miniature cinnamon rolls	12.0	4.5	2.2	0.4	19.0	0.9	27.0	1	B
21078	Fast foods, nachos with cheese	0.7	4.8	11.0	0.7	9.3	0.8	26.0	1	B
21080	Fast foods, nachos, with cheese, beans, ground beef, and peppers	2.0	7.5	1.3	0.9	17.0	1.5	28.0	1	B
21303	Fast food, pizza chain, 14" pizza, pepperoni topping, thick crust	28.0	9.7	2.5	0.5	9.3	2.7	25.0	7	A
21138	Fast foods, potato, french fried in vegetable oil	0.5	11.0	2.4	1.5	6.2	0.0	21.0	3	B
21026	Fast foods, potatoes, hashed brown	0.3	7.2	1.6	0.5	8.2	0.2	18.0	1	B

## USDA Database for the Choline Content of Common Foods

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		mg/100g of food	mg choline moiety / 100 g of food							
21083	Fast foods, taco salad	11.0	8.8	1.0	0.8	12.0	1.3	23.0	1	B
21082	Fast foods, tacos	3.3	11.0	1.0	1.1	17.0	2.0	32.0	1	B
21230	Fast foods, crispy chicken	76.0	5.7	4.1	0.9	18.0	2.6	31.0	1	B
98039	Frozen cheese pizza, regular thin crust, (heated)	26.0	6.7	1.4	0.8	4.2	0.9	14.0	1	B
22903	Frozen pepperoni pizza, (heated)	20.0	11.0	2.1	1.0	10.0	1.8	26.0	1	B
21226	Meat and vegetable pizza, frozen (heated)	25.0	11.0	1.8	0.8	9.6	1.3	25.0	1	B
21089	Sandwiches and burgers, cheeseburger, regular, single meat patty, plain	16.0	3.0	2.9	1.3	19.0	3.3	29.0	1	B
22902	Sausage and pepperoni pizza, frozen	19.0	8.1	1.6	0.4	11.0	1.3	22.0	1	B
<b>Mixed Dishes</b>										
22905	Beef stew, canned entrée	1.8	2.9	1.1	0.7	9.8	1.1	16.0	1	B
22927	Burrito, bean and cheese, microwaved	30.0	14.0	1.2	0.2	12.0	0.0	28.0	1	B
22928	Burrito, beef and bean, microwaved	34.0	15.0	1.1	0.0	12.0	0.2	28.0	1	B
22904	Chili con carne with beans, canned entree	0.9	12.0	1.5	0.6	12.0	1.5	27.0	1	B
98119	Egg rolls, restaurant	22.0	3.8	0.5	0.7	9.2	3.8	18.0	1	C
98099	Hot dog and bun	44.0	4.5	1.9	0.8	21.0	2.1	30.0	1	B
22916	Lasagna with meat sauce, frozen entrée	6.1	5.2	1.1	0.9	8.6	1.2	17.0	1	B
22247	Macaroni and cheese, canned entrée	43.0	2.8	1.1	0.4	1.1	0.0	5.4	1	B
98064	Macaroni and cheese, canned, microwave	41.0	3.9	4.9	0.6	2.7	1.2	13.0	1	B
98070	Macaroni and cheese, prepared with cheese powder, boxed	12.0	4.0	4.8	1.1	3.3	1.0	14.0	1	B
98071	Macaroni and cheese, prepared with cheese sauce, boxed	19.0	4.3	13.0	0.8	3.0	1.4	22.0	1	B
22912	Spaghetti, with meatballs, canned	24.0	5.4	1.1	0.4	4.4	0.7	12.0	1	B
98069	Tamales	1.7	2.7	1.4	0.2	12.0	1.6	18.0	1	B
<b>Snacks</b>										
25021	Formulated bar, LUNA Meal Bar	1.7	14.0	3.2	0.6	21.0	2.7	42.0	1	B
25017	Formulated bar, POWER BAR, chocolate	4.3	7.8	2.5	0.3	7.1	0.8	18.0	1	B
25020	Formulated bar, SLIMFAST OPTIMA Meal Bar, Chocolate Peanut	2.2	19.0	1.9	0.8	18.0	0.9	41.0	1	B
19003	Snacks, corn-based, extruded, chips, plain	0.1	1.9	0.7	0.0	9.5	0.0	12.0	1	B
19008	Snacks, corn-based, extruded, puffs or twists, cheese-flavor	0.6	3.8	5.9	0.7	0.9	0.4	12.0	2	B

## USDA Database for the Choline Content of Common Foods

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		mg/100g of food	mg choline moiety / 100 g of food							
25013	Snacks, FRITOLAY, SUNCHIPS, Multigrain Snack, original flavor	39.0	3.9	2.1	0.2	8.5	0.0	15.0	1	B
19015	Snacks, granola bars, hard, plain	6.9	4.2	3.9	0.3	14.0	0.0	22.0	1	B
19404	Snacks, granola bars, soft, uncoated, chocolate chip	22.0	7.1	1.9	0.4	7.4	0.0	17.0	1	B
19034	Snacks, popcorn, air-popped	0.8	7.2	2.4	0.0	12.0	0.0	21.0	1	B
25000	Snacks, popcorn, microwave, 94% fat free	0.3	5.4	2.6	0.0	4.9	0.0	13.0	1	B
25014	Snacks, popcorn, microwave, butter flavor	0.3	5.5	3.0	0.0	5.4	0.0	14.0	1	B
19035	Snacks, popcorn, oil popped	0.4	5.6	1.8	0.0	7.9	0.0	15.0	2	B
19411	Snacks, potato chips, plain, salted	0.2	4.6	0.0	0.0	7.5	0.0	12.0	1	B
19047	Snacks, pretzels, hard, plain, salted	50.0	16.0	9.8	0.3	3.6	0.0	30.0	2	B
19444	Snacks, tortilla chips, low fat, made with olestra, nacho cheese	0.3	4.6	1.7	0.0	14.0	0.2	20.0	1	B
19057	Snacks, tortilla chips, nacho cheese	1.2	4.5	3.5	1.7	12.0	0.7	23.0	1	B
19056	Snacks, tortilla chips, plain	0.4	4.2	2.7	0.0	13.0	0.0	19.0	1	B
19058	Snacks, tortilla chips, ranch-flavor	3.0	4.2	3.8	0.5	9.5	0.4	18.0	1	B
<b>Ethnic Foods</b>										
35182	Acorn stew (Apache)	9.6	1.3	1.6	0.3	26.0	5.6	34.0	1	C
35193	Agave, cooked	0.4	5.2	0.7	0.0	2.8	0.1	8.8	1	B
35015	Blackberries, raw (Alaska Native)	0.2	1.4	0.1	0.1	3.2	0.1	4.9	1	C
35155	Blueberries, wild, raw (Alaska Native)	0.5	2.9	1.4	0.2	6.9	0.0	11.0	1	C
98100	Caribou, ground	16.0	0.6	8.7	1.4	120.0	17.0	150.0	2	B
35162	Caribou, hind quarter meat, raw (Alaska Native)	2.8	2.2	6.5	1.2	67.0	11.0	88.0	1	C
35160	Caribou, rump meat, partially dried (Alaska Native)	29.0	15.0	31.0	5.1	120.0	27.0	200.0	1	C
35161	Caribou, shoulder meat, dried (Alaska Native)	43.0	51.0	33.0	7.3	130.0	32.0	260.0	1	C
98102	Cattail shoots	1.1	14.0	1.8	6.4	1.1	0.0	24.0	1	B
35179	Chokecherries, raw, pitted	0.5	6.7	0.1	0.1	4.0	0.0	11.0	2	B
35188	Fish, halibut, cooked, with skin (Alaska Native)	5.2	5.5	23.0	0.9	30.0	4.4	64.0	3	B
35149	Fish, halibut, raw, with skin (Alaska Native)	9.2	8.6	25.0	0.4	13.0	4.1	50.0	4	B
35171	Fish, salmon, chum, dried (Alaska Native)	11.0	64.0	100.0	2.4	45.0	15.0	230.0	2	C
35152	Fish, salmon, chum, raw (Alaska Native)	2.9	23.0	41.0	0.9	23.0	1.5	90.0	1	C
35150	Fish, salmon, coho (silver), raw (Alaska Native)	5.4	31.0	39.0	1.5	22.0	1.3	94.0	1	C

## USDA Database for the Choline Content of Common Foods

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		mg/100g of food	mg choline moiety / 100 g of food							
35153	Fish, salmon, king (chinook), raw (Alaska Native)	5.2	20.0	50.0	1.4	23.0	1.8	96.0	1	C
98101	Fish, salmon, king, kippered, raw	4.3	9.6	32.0	2.5	45.0	18.0	110.0	1	C
35168	Fish, salmon, king, with skin, kippered, (Alaska Native)	3.6	8.8	33.0	2.6	40.0	14.0	99.0	1	C
35190	Fish, salmon, red (sockeye), smoked (Alaska Native)	6.8	46.0	130.0	1.8	35.0	11.0	220.0	2	C
35166	Fish, salmon, red, (sockeye), canned, smoked (Alaska Native)	5.0	12.0	42.0	2.8	39.0	12.0	110.0	1	C
35167	Fish, salmon, red, (sockeye), kippered (Alaska Native)	4.2	12.0	24.0	3.2	39.0	11.0	88.0	1	C
35157	Fish, salmon, red, canned, bones removed (Alaska Native)	3.3	7.1	29.0	2.0	35.0	8.7	82.0	1	C
35151	Fish, salmon, sockeye (red), raw (Alaska Native)	4.3	20.0	53.0	1.5	24.0	1.4	99.0	1	C
35169	Fish, sheefish, dried (Alaska Native)	120.0	12.0	74.0	1.1	15.0	7.4	110.0	1	C
35184	Fish, smelt, dried (Alaska Native)	15.0	170.0	0.1	3.5	96.0	25.0	300.0	1	C
35181	Fish, steelhead trout, boiled, canned (Alaska Native)	2.5	2.6	46.0	1.7	38.0	2.2	90.0	1	C
35180	Fish, steelhead trout, dried, flesh (Shoshone Bannock)	38.0	15.0	190.0	4.1	46.0	4.2	260.0	1	C
35165	Fish, whitefish, dried (Alaska Native)	88.0	50.0	41.0	3.0	80.0	32.0	210.0	1	C
35158	Fish, whitefish, eggs (Alaska Native)	8.2	12.0	5.1	1.8	220.0	13.0	250.0	1	C
98105	Prairie turnips, raw	0.1	4.2	0.0	0.3	0.3	0.0	4.8	2	B
98104	Prickly pear, raw	0.3	3.8	0.2	0.2	0.2	0.0	4.3	1	B
35055	Seal, bearded (oogruk), meat, air-dried (Alaska Native)	16.0	17.0	52.0	1.5	33.0	20.0	120.0	1	C
35164	Seal, bearded (oogruk), meat, dried, in oil (Alaska Native)	61.0	6.8	20.0	1.3	28.0	12.0	68.0	1	B
35056	Seal, bearded (oogruk), meat, raw (Alaska Native)	9.9	7.9	24.0	1.5	30.0	8.1	72.0	1	C
98103	Stinging nettles	21.0	3.3	5.0	3.7	5.4	0.0	17.0	1	B
35187	Tennis bread, plain (Apache)	32.0	6.3	1.9	0.1	5.0	2.0	15.0	1	C
35009	Whale, beluga, meat, air-dried, raw (Alaska Native)	24.0	42.0	48.0	5.6	17.0	20.0	130.0	1	C
98107	Wild plums	0.2	0.6	0.3	0.5	3.8	0.0	5.2	1	B
98106	Wild raspberries	0.5	2.4	1.4	1.2	4.4	0.0	9.5	1	B
98108	Wild rose hips	2.9	4.0	1.8	0.7	5.4	0.0	12.0	1	B

<sup>1</sup> The NDB number is a five digit numerical code used in the USDA Nutrient Database for Standard Reference (SR). Foods in the table which do not have corresponding entries in SR are indicated by “98\_\_\_” in the NDB column.

<sup>2</sup> Free choline (Free Cho), glycerophosphocholine (GPC), phosphocholine (Pcho), phosphatidylcholine (PC) and sphingomyelin (SM)

<sup>3</sup> Total Choline (Total Cho) refers to the sum of free choline, glycerophosphocholine, phosphocholine, phosphatidylcholine and sphingomyelin. Betaine is not included in the sum.

<sup>4</sup> Confidence Code: an indicator of the relative quality of the data and the reliability of a given mean. Confidence Code applies to Total Choline only.

<sup>5</sup> Values for all of the metabolites of choline as well as Total Choline have been rounded to two significant figures. The Total Choline was initially computed from the sum of the unrounded values.