

**Sources of Energy and Selected Nutrient Intakes  
Among the US Population, 2005-06**

**A Report Prepared for the 2010 Dietary Guidelines Advisory Committee**

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## **Sources of Energy and Selected Nutrient Intakes among the US Population, 2005-06**

### **Objective**

The purpose of this research was to identify the contributions of various foods to intake of energy and selected nutrients in the US population age 2 years and older.

### **Methods**

We used the 2005-06 National Health and Nutrition Examination Survey to determine weighted population proportions for the contribution of specific foods to intake of energy, sodium, choline, cholesterol, and selected fatty acids.

The dietary intake data collected in the survey were catalogued according to 4069 discrete food codes. For this analysis, food codes representing similar foods—such as the various types of pasta dishes—were combined to provide an indication of the contribution of distinct food items to intake of the nutrients being studied. That is, the 4069 codes were sorted into 96 mutually exclusive food categories, termed specific foods. Figure 1 includes the list of specific foods. There are separate tables for energy and each nutrient (see tables 1 through 11).

### **Results**

Top sources of energy were grain-based desserts, yeast breads, chicken and chicken mixed dishes, soda, pizza, and alcoholic beverages. Major contributors of sodium were yeast breads, pizza, and chicken and chicken mixed dishes. Eggs and egg mixed dishes provided 11% of choline and 25% of cholesterol. The top source of omega-3 fatty acids was salad dressing, while the top source of DHA and EPA was other fish and fish mixed dishes.

It is worth noting that the foods that are the richest sources of a nutrient are not necessarily the major contributors. Because some foods are commonly consumed in the population they result in a significant contribution to the total intake of a nutrient.

Looking through the list of foods is informative as well. For example, about 10% of energy comes from liquid calories in the form of soda, alcoholic beverages, and fruit drinks.

**Figure 1.** List of specific foods: Result of grouping like foods reported in 2005-2006 NHANES<sup>a</sup>

<b>Beverages</b>	<b>Produce</b>	<b>Entrees</b>
Whole milk	Broccoli	Chili
Reduced fat milk	Carrots	Mexican mixed dishes
Skim milk	Coleslaw	Pizza
Vegetable juice	Corn	Soups
100% fruit juice, not orange/grapefruit juice	Fried white potatoes	Meal replacements
100% orange/grapefruit juice	Lettuce	Pasta and pasta dishes
Fruit drinks	Onions	Rice and rice mixed dishes
Soda, energy and sports drinks <sup>b</sup>	Other cruciferous	Egg rolls
Milk substitute and evaporated milk	Other white potatoes	
Alcoholic beverages	Peas	<b>Refrigerator/Frozen</b>
Coffee	Spinach	Yogurt
Tea	String beans	Cottage/ricotta/cream cheese
	Sweet potatoes	Dairy desserts
	Tomatoes	Frozen meals
	Tomato sauces	
<b>Bakery/Breads</b>	Vegetable medleys and other vegetables	<b>Deli</b>
Hot cereal	Vegetable mixed dishes	Regular cheese
Pancakes/waffles/French toast	Apples and pears	Reduced fat cheese
Quickbreads	Avocado	Dried beans
Ready-to-eat cereals	Bananas	Burgers
Grain-based desserts <sup>c</sup>	Citrus fruits	Cold cuts
Yeast breads	Dried fruit	Eggs and egg mixed dishes <sup>g</sup>
	Grapes	Tuna and tuna mixed dishes
<b>Dressings, spreads, other additions<sup>d</sup></b>	Melon	Shrimp and shrimp mixed dishes
Butter <sup>e</sup>	Peaches/plums/apricots/nectarines	Other fish and fish mixed dishes
Cream	Strawberries	Liver and other organ meats
Margarine <sup>f</sup>	Other fruit and fruit salad	Beef and beef mixed dishes
Mayonnaise		Chicken and chicken mixed dishes
Miscellaneous solid fats	<b>Snacks</b>	Duck and duck mixed dishes
Nondairy creamer/cream substitutes	Potato/corn/other chips <sup>f</sup>	Other meat and meat mixed dishes
Oils <sup>e</sup>	Popcorn	Pork and pork mixed dishes
Salad dressing	Pretzels	Turkey and turkey mixed dishes
Sauces	Nuts/seeds and nut/seed mixed dishes	Sausage, franks, bacon, and ribs
Sour cream	Candy	Tofu and meat substitutes
Condiments	Crackers	
Gelatins		
Jams and jelly		
Sugars/honey		
Syrups/toppings		

<sup>a</sup>NHANES=National Health and Nutrition Examination Survey

<sup>b</sup>Includes sodas, energy drinks, sports drinks, and sweetened bottled water including vitamin water.

<sup>c</sup>Includes cakes, cookies, donuts, pies, crisps, cobblers, granola bars.

<sup>d</sup>Includes low-fat items such as low-fat salad dressings, cream cheese, and sour cream.

<sup>e</sup>Butter, margarines, and oils do not include those used in Yeast breads, Grain-based desserts, Quickbreads, Pancakes/waffles/French toast, Dairy desserts, Salad dressing, Mayonnaise, Pasta and pasta mixed dishes, Mexican mixed dishes, Ready-to-eat cereal, Crackers, Pretzels, Potato/corn/other chips, Candy.

<sup>f</sup>Includes lowfat versions.

<sup>g</sup>Excludes eggs found in Grain-based desserts, Pancakes/waffles/French toast, Yeast breads, Quickbreads, Dairy desserts, Egg rolls, Pasta and pasta mixed dishes.

**Table 1.** Food sources of energy, listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution %
1	Grain-based desserts	6.5	6.5
2	Yeast breads	5.9	12.5
3	Chicken and chicken mixed dishes	5.6	18.1
4	Soda, energy and sports drinks	5.5	23.6
5	Pizza	5.0	28.5
6	Alcoholic beverages	4.2	32.7
7	Mexican mixed dishes	3.8	36.5
8	Pasta and pasta dishes	3.7	40.2
9	Beef and beef mixed dishes	2.8	43.0
10	Dairy desserts	2.8	45.8
11	Potato/corn/other chips	2.5	48.3
12	Burgers	2.5	50.8
13	Sausage, franks, bacon, and ribs	2.3	53.1
14	Reduced fat milk	2.3	55.4
15	Fried white potatoes	2.3	57.7
16	Regular cheese	2.3	60.0
17	Ready-to-eat cereals	2.2	62.2
18	Candy	2.1	64.3

Specific foods contributing at least 1% of energy in descending order: eggs and egg mixed dishes, nuts/seeds and nut/seed mixed dishes, rice and rice mixed dishes, fruit drinks, whole milk, quickbreads, salad dressing, cold cuts, soups, other fish and fish mixed dishes, other white potatoes, crackers.

**Table 2.** Food sources of sodium listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution
			%
1	Yeast breads	7.2	7.2
2	Pizza	6.9	14.2
3	Chicken and chicken mixed dishes	6.9	21.0
4	Pasta and pasta dishes	4.9	25.9
5	Condiments	4.3	30.2
6	Cold cuts	4.3	34.5
7	Sausage, franks, bacon, and ribs	4.2	38.7
8	Mexican mixed dishes	4.2	42.9
9	Regular cheese	3.6	46.5
10	Grain-based desserts	3.5	50.0
11	Soups	3.2	53.2
12	Beef and beef mixed dishes	3.0	56.3
13	Rice and rice mixed dishes	2.6	58.9
14	Eggs and egg mixed dishes	2.6	61.5
15	Burgers	2.5	64.0
16	Salad dressing	2.4	66.4

Specific foods contributing at least 1% of sodium in descending order: ready-to-eat cereals, pork and pork mixed dishes, quickbreads, potato/corn/other chips, other white potatoes, other fish and fish mixed dishes, fried white potatoes, reduced fat milk, crackers, soda, energy and sports drinks, pancakes/waffles/French toast, beans.

**Table 3.** Food sources of choline, listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution
			%
1	Eggs and egg mixed dishes	11.3	11.3
2	Chicken and chicken mixed dishes	8.6	19.9
3	Beef and beef mixed dishes	7.3	27.2
4	Reduced fat milk	5.2	32.4
5	Alcoholic beverages	5.0	37.4
6	Burgers	3.7	41.2
7	Other fish and fish mixed dishes	3.1	44.3
8	Sausage, franks, bacon, and ribs	3.0	47.3
9	Cold cuts	2.6	50.0
10	Mexican mixed dishes	2.6	52.6
11	Pasta and pasta dishes	2.6	55.1
12	Pork and pork mixed dishes	2.5	57.6
13	Yeast breads	2.4	60.0
14	Grain-based desserts	2.4	62.4
15	Dairy desserts	2.2	64.6
16	Whole milk	2.2	66.7
17	Pizza	2.1	68.8
18	Coffee	2.0	70.9

Specific foods contributing at least 1% of choline intake in descending order: soups, skim milk, nuts/seeds and nut/seed mixed dishes, beans, other white potatoes, fried white potatoes, regular cheese.



**Table 4.** Food sources of cholesterol listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution
			%
1	Eggs and egg mixed dishes	24.6	24.6
2	Chicken and chicken mixed dishes	12.5	37.1
3	Beef and beef mixed dishes	6.4	43.6
4	Burgers	4.6	48.2
5	Regular cheese	4.2	52.4
6	Sausage, franks, bacon, and ribs	3.9	56.3
7	Other fish and fish mixed dishes	3.4	59.7
8	Grain-based desserts	3.3	63.0
9	Dairy desserts	3.2	66.3
10	Pasta and pasta dishes	3.1	69.3
11	Pizza	2.9	72.2
12	Mexican mixed dishes	2.9	75.1
13	Cold cuts	2.7	77.8
14	Reduced fat milk	2.5	80.3
15	Pork and pork mixed dishes	2.3	82.6
16	Shrimp and shrimp mixed dishes	2.0	84.6

Specific foods contributing at least 1% of cholesterol in descending order: whole milk, butter, soups, quickbreads, pancakes/waffles/French toast.

**Table 5.** Food sources of oleic acid (MFA 18:1), listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution %
1	Grain-based desserts	8.9	8.9
2	Chicken and chicken mixed dishes	7.6	16.6
3	Sausage, franks, bacon, and ribs	5.9	22.5
4	Nuts/seeds and nut/seed mixed dishes	5.5	27.9
5	Pizza	5.4	33.3
6	Fried white potatoes	4.9	38.2
7	Mexican mixed dishes	4.6	42.8
8	Burgers	4.1	46.9
9	Beef and beef mixed dishes	3.9	50.8
10	Eggs and egg mixed dishes	3.5	54.3
11	Regular cheese	3.3	57.5
12	Potato/corn/other chips	3.2	60.7
13	Pasta and pasta dishes	3.1	63.8
14	Salad dressing	2.6	66.4
15	Dairy desserts	2.3	68.7
16	Yeast breads	2.2	70.9

Specific foods contributing at least 1% of octadecenoic acid in descending order: cold cuts, quickbreads, crackers, candy, reduced fat milk, pork and pork mixed dishes, whole milk, other fish and fish mixed dishes, margarine, soups, butter.

**Table 6.** Food sources of total omega 6 fatty acids (18:2 + 20:4), listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution %
1	Chicken and chicken mixed dishes	9.5	9.5
2	Grain-based desserts	7.4	16.9
3	Salad dressing	7.3	24.3
4	Potato/corn/other chips	6.9	31.2
5	Nuts/seeds and nut/seed mixed dishes	6.4	37.6
6	Pizza	5.3	42.9
7	Yeast breads	4.5	47.4
8	Fried white potatoes	3.5	50.9
9	Pasta and pasta dishes	3.5	54.4
10	Mexican mixed dishes	3.3	57.7
11	Mayonnaise	3.1	60.8
12	Quickbreads	3.0	63.8
13	Eggs and egg mixed dishes	2.9	66.7
14	Popcorn	2.6	69.2
15	Sausage, franks, bacon, and ribs	2.1	71.4

Specific foods contributing at least 1% of omega 6 fatty acids in descending order: other fish and fish mixed dishes, margarine, burgers, beef and beef mixed dishes, rice and rice mixed dishes, crackers, other white potatoes, beans, candy.

**Table 7.** Food sources of linoleic acid (PFA 18:2), listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution %
1	Chicken and chicken mixed dishes	9.3	9.3
2	Grain-based desserts	7.5	16.8
3	Salad dressing	7.4	24.2
4	Potato/corn/other chips	6.9	31.2
5	Nuts/seeds and nut/seed mixed dishes	6.5	37.7
6	Pizza	5.3	43.0
7	Yeast breads	4.5	47.5
8	Fried white potatoes	3.5	51.0
9	Pasta and pasta dishes	3.5	54.6
10	Mexican mixed dishes	3.3	57.9
11	Mayonnaise	3.1	61.0
12	Quickbreads	3.0	64.0
13	Eggs and egg mixed dishes	2.8	66.8
14	Popcorn	2.6	69.4
15	Sausage, franks, bacon, and ribs	2.1	71.5

Specific foods contributing at least 1% of octadecadienoic acid in descending order: other fish and fish mixed dishes, margarine, burgers, crackers, rice and rice mixed dishes, beef and beef mixed dishes, other white potatoes, beans, candy.

**Table 8.** Food sources of arachidonic acid (PFA 20:4), listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution %
1	Chicken and chicken mixed dishes	26.9	26.9
2	Eggs and egg mixed dishes	17.8	44.7
3	Beef and beef mixed dishes	7.3	52.0
4	Sausage, franks, bacon, and ribs	6.7	58.7
5	Other fish and fish mixed dishes	5.8	64.5
6	Burgers	4.6	69.1
7	Cold cuts	3.3	72.4
8	Pork and pork mixed dishes	3.1	75.5
9	Mexican mixed dishes	3.1	78.7
10	Pizza	2.8	81.5
11	Turkey and turkey mixed dishes	2.7	84.2
12	Pasta and pasta dishes	2.3	86.5
13	Grain-based desserts	2.0	88.5

Specific foods contributing at least 1% of eicosatetraenoic acid in descending order: shrimp and shrimp mixed dishes, soups, regular cheese.

**Table 9.** Food sources of total omega 3 fatty acids (18:3 + 20:5 + 22:6), listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution %
1	Salad dressing	9.8	9.8
2	Chicken and chicken mixed dishes	6.9	16.7
3	Grain-based desserts	5.7	22.5
4	Other fish and fish mixed dishes	5.7	28.2
5	Pizza	5.4	33.5
6	Yeast breads	4.7	38.2
7	Mayonnaise	3.7	42.0
8	Pasta and pasta dishes	3.3	45.3
9	Quickbreads	3.2	48.5
10	Fried white potatoes	2.6	51.1
11	Mexican mixed dishes	2.6	53.7
12	Nuts/seeds and nut/seed mixed dishes	2.5	56.2
13	Burgers	2.4	58.6
14	Eggs and egg mixed dishes	2.4	61.0
15	Margarine	2.4	63.4
16	Regular cheese	2.4	65.8
17	Dairy desserts	2.1	67.9
18	Whole milk	2.0	69.9

Specific foods contributing at least 1% of total omega 3 fatty acids in descending order: sausage, franks, bacon, and ribs, other white potatoes, beef and beef mixed dishes, beans, potato/corn/other chips, tuna and tuna mixed dishes, shrimp and shrimp mixed dishes, coleslaw, rice and rice mixed dishes, popcorn, vegetable mixtures.

**Table 10.** Food sources of alpha-linolenic acid (PFA 18:3), listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution %
1	Salad dressing	10.5	10.5
2	Chicken and chicken mixed dishes	6.4	17.0
3	Grain-based desserts	6.1	23.1
4	Pizza	5.8	28.9
5	Yeast breads	5.0	33.9
6	Mayonnaise	4.0	37.9
7	Pasta and pasta dishes	3.5	41.4
8	Quickbreads	3.4	44.9
9	Fried white potatoes	2.8	47.7
10	Mexican mixed dishes	2.7	50.4
11	Nuts/seeds and nut/seed mixed dishes	2.7	53.1
12	Burgers	2.6	55.7
13	Margarine	2.6	58.3
14	Regular cheese	2.6	60.8
15	Dairy desserts	2.2	63.1
16	Whole milk	2.2	65.3
17	Eggs and egg mixed dishes	2.2	67.4
18	Other fish and fish mixed dishes	2.0	69.4

Specific foods contributing at least 1% of octadecatrienoic in descending order: sausage, franks, bacon, and ribs, other white potatoes, beef and beef mixed dishes, beans, potato/corn/other chips, coleslaw, rice and rice mixed dishes, tuna and tuna mixed dishes, popcorn, vegetable mixtures.

**Table 11.** Food sources of EPA and DHA (20:5 + 22:6), listed in descending order by percentages of their contribution to intake, based on data from the National Health and Nutrition Examination Survey 2005-2006

Rank	Food item	Contribution to intake	Cumulative contribution %
1	Other fish and fish mixed dishes	53.1	53.1
2	Chicken and chicken mixed dishes	13.8	66.9
3	Shrimp and shrimp mixed dishes	12.9	79.8
4	Eggs and egg mixed dishes	5.8	85.6
5	Tuna and tuna mixed dishes	5.3	91.0

Specific foods contributing at least 1% of EPA and DHA: soups, Mexican mixed dishes