December 2012

New caffeine report shows no measurable change in consumption trends of the U.S. population.

The “Caffeine Intake by the U.S. Population” report prepared for FDA presents an in-depth analysis of the U.S. population’s consumption of caffeine between 2003 and 2008. It focuses on different dietary sources of caffeine and consumption levels across various age groups, including children ages 2 -13, teenagers 14 – 21 by gender, and women of childbearing age (16 – 45). During this time, the average amount of caffeine consumed has remained constant at approximately 300 milligrams (mg) per person per day. The major food sources of caffeine are coffee, soft drinks and tea. Teenagers and young adults consumed roughly one-third the amount of caffeine as adults, or about 100 mg per day, and “energy drinks” contributed only a small portion of caffeine consumed by teenagers.

FDA comments on
Subcontract Number: 70000073494, Somogyi 2010,
“CAFFEINE INTAKE by the U.S. POPULATION”

FDA has noted several minor errors in the report authored on FDA contract by Laszlo Somogyi. These errors do not impact the overall results of the review, but are noted below for completeness:

• In the executive summary (ES), the NPD survey is described as being completed by "60" households. It is stated, correctly, to be 2000 on p. 50.

• In the discussion of natural caffeine sources (p. 4), the first 4 paragraphs appear to have several minor numerical and typographical errors; data is cited (from a website medicinenet.com) that is not entirely consistent (slightly different numbers, not huge difference) with later data presented in the report.

• Several errors (some transposition errors) can be found in Tables 2-12 of the report. There are some incorrect NDB numbers and some incorrect volumes of measure (mismatch with coinciding gram amount).

• Although these may not be errors, in comparison with Version 25 of the National Nutrient Database for Standard Reference (NDB) (SR 25, the current version), the following values in SR 22 are significantly different : 14375-14353 (Table 2, p. 9; note 3680 mg caffeine per 100 g instant decaf coffee); 14366-14368 (p. 10, plus other minor errors); Table 9, p. 15-19 contains errors and a number of duplicates; Tables 10 and 11 contain minor errors.

• On p. 34 (Table 17) there is a heading "Caffeine per serving" but no values are given in the table; rather, company names are listed.

• In the data summary on p.46, the drip coffee value appears to include a 16 ounce value (330 mg/serving) rather than an 8 ounce value as stated. In the drip or percolated coffee category, the highest number is 187 mg/8 ounces.

• Also in the data summary on p.46, the miscellaneous drugs category does not appear to include diet pills, which contained as much as 910 mg/serving.

• Also in the data summary on p.46, some of the categories of foods and beverages are not clearly delineated (e.g., Ready-To-Drink (RTD) tea and iced tea, chocolates and sweets). The caffeine content of Snapple was included in the range for iced tea but not RTD tea. The caffeine content of Hershey's special was not included in the chocolate category but could be contained within sweets.

• Also in the data summary on p.46, some foods/drinks appear to be missing from this table, including Chai and energy "shots."

• On p. 53, there are errors in the text of the first paragraph for males 14-21 and females 14-21.

• Pie graphs are consistent with data from Table 33, p. 63 except for Fig. 11. Correct numbers (from Table 33) are 33.7 mg coffee, 36.3 mg carbonated beverages, 15.0 mg other beverages, 16.2 mg tea. Food value (2.2 mg is ok). Pie chart legends are incomplete for Figs 8-10.

• In Appendix A (NPD data and "adjusted" NPD data), pie charts are consistent with tables (on preceding pages) except for Figure A3 (p. 76), which does not match Table A3 (p. 75). According to the table, the correct values should be 1.1 mg coffee, 7.5 mg tea, 10.9 mg carbonated beverages, 7.0 mg other beverages, 2.2 mg food.

CAFFEINE INTAKE BY THE U.S. POPULATION

Prepared for:

The Food and Drug Administration
Oakridge National Laboratory

Subcontract Number: 70000073494

Completed: in September 2009
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Table of Contents

Executive Summary

The Food and Drug Administration (FDA) requested an in-depth analysis of the U.S. population's consumption of caffeine. In particular, the Agency was interested in the daily caffeine intake for the subpopulations of children 2-13, male and female teenagers 14-21, and women of childbearing age 16-45.

To complete the assignment, a two-phase study was conducted. In the first phase, levels of caffeine content of foods were compiled using the National Nutrient Database for Standard Reference (NDB) (39). Then the NDB data were extended using more focused caffeine content information collected from a comprehensive review of scientific publications, the Internet, trade association's data, and industry sources.

In the second phase, the daily caffeine intake of the U.S. population overall and of its various age and gender groups was estimated. To do so, results of the National Health and Nutrition Examination Survey (NHANES) (38) and the NPD Group's Food Consumption (34) surveys were used. The NHANES' food consumption surveys were conducted in 1999-2000, 2001-2002, 2003-2004, and 2005-2006 (38); the NPD Group' survey was compiled in 2008 from 14 consecutive days of 24-hour recall food diaries, conducted in sequence throughout the year with each two-week reporting period sequence completed by 60 households (for more details on the NDP survey process see Appendix A). The NPD data show the specific source and quantity that participants consumed daily and provide a breakdown of the overall consumption data by age and gender. In contrast, the NHANES surveys do not identify specific caffeine food sources and do not segregate intake information for females of childbearing age. Moreover, the findings of the two surveys in regard to the amount of caffeine consumed were found to be somewhat contradictory.

Accordingly, data from the two sources were validated and, if considered necessary, were updated using market information provided by The National Coffee Association (33), The Tea Association of the USA (36), and the American Beverage Association (27). U.S. trade statistics (23) are also included in our estimates because all principal sources of caffeine coffee, tea, and cocoa are imported to the United States.

From our analysis of these sources we derived the following conclusions:

More than 97% of the caffeine intake of teenagers and adults and about 95% intake of the children 2 to 13 come from beverage sources. Solid food supplies contribute only a very small amount to dietary caffeine intake. The mean daily caffeine intake of the adult population older than 22 was 300 mg in 2008. The younger age groups consumed much less caffeine because their main beverage source was cola or tea, and typical servings of those beverages contain much less caffeine than does coffee. Women of childbearing age drank less coffee than other adult groups; consequently, their daily intake of caffeine was much less than that of the overall population.

Any significant change in the caffeine intake of the U.S. population would depend on modification of coffee drinking practices, given that all other caffeine sources make only a minor contribution to overall caffeine consumption. However, according to the National Coffee Association' survey (34) consumption trend of daily cups per coffee drinker (and cups per capita) were stable in 2009.Those who drank coffee yesterday consumed an average of 3.3 cups per day, essentially unchanged since 2003's 3.0 cups per day. Trade information is consistent

with these data as apparent U.S. consumption (i.e. imports minus export) of coffee beans was nearly constant during the past 3 years.

Energy drinks designed to increase mental alertness and physical performances for consumers by the addition of caffeine and herbal supplements such as guarana, kola nuts, and yerba maté. Energy drinks usually contain substantially more caffeine per serving than do conventional cola drinks. Of the leading brands, Red Bull contains 80 mg of caffeine per serving; Monster Energy, Rockstar, Java Monster, 160 mg each; and NOS, 260 mg. Between 2001 and 2006, market growth of these products exceeded 50% annually, but growth declined to 9% in 2008 and to 0.2% in 2009. In 2009 354.5 million gallon energy drinks were sold. According to the Beverage Marketing Corporation report estimates (27) in 2008 the mean per capita daily caffeine intake from energy drinks of the U.S. population older than 10 was 7.2 mg. Reliable consumption data for habitual energy drinkers are unavailable. Assuming that 2% of the adult population is drinking energy drinks, caffeine intake of those individuals would be between 233 and 465 mg/day.

Energy shots a specialized kind of energy drink are the fastest-growing segment of the energy drink category. Overall, energy shots now account for 11 percent of the energy market. Whereas most energy drinks are generally sold in 12 and 16 fluid ounce (355 and 474 ml respectively) size cans or bottles, energy shots are usually sold in much smaller 50 ml bottles. Energy shots normally contain the same amount of caffeine, or other functional ingredients as their larger siblings, and therefore they may be considered concentrated forms of energy drinks.

Statement of Work

Caffeine has been a component of the human diet for many centuries, primarily through the consumption of coffee and tea beverages. In the 20th Century, consumption of carbonated soft drinks with added caffeine became commonplace. At the start of the new millennium, new beverages with added caffeine and other stimulatory natural products, such as guarana and taurine, have entered the marketplace. With the introduction of these new beverages, often targeted at young consumers, the Food and Drug Administration (FDA) is considering what, if anything needs to be done to assure that current and future consumption of these products is safe.

The FDA requested an in-depth analysis of the US population's consumption of caffeine from all sources, natural and added. In order to complete this work task, levels of caffeine naturally in or added to foods and beverages will have to be determined. The primary, but not exclusive, sources will be coffee, tea, cocoa, carbonated soft drinks, and the so-called energy drinks. Additional minor sources, as revealed by the investigators, will have to be included in the analysis. Caffeine levels should be as specific to product as possible (e.g., added caffeine in carbonated soft drinks range normally from approx. 20 to 100 mg/kg) within the constraints of the investigation. A measure of the uncertainty surrounding the levels chosen should be included in the analysis.

In order to obtain a distribution of intakes for caffeine in the US diet, high quality and specific food consumption data will have to be combined with the caffeine levels determined for each of the foods. The NHANES (National Health and Nutrition Examination Survey) food consumption surveys (38) completed in 2005-6, 2003-4 and 2001-2002 is one database with these data. Longer frequency of intake surveys, typically used for marketing purposes, such as those completed by the NPD Group (34), can also be used with appropriate manipulation to allow individual diets to be reconstructed. The food consumption database needs to be representative of the US population and must be robust enough to allow analyses of specific subsets of the total population, as discussed below. The merits and drawbacks for the choice of food consumption database should be included in the analysis.

Because students and other young people often consume the newer energy drinks, the Agency is interested in the distributions of caffeine intake for the subpopulations of children 2-13 years old, male and female teenagers 14-21 years old, and women of childbearing age 16-45 years old. These subgroups often have much higher mean intakes of foods than the population in general or may be particularly sensitive to components of the diet.

Caffeine, whose chemical name is 1,3,7-trimethylxanthine, is a bitter white crystalline alkaloid that acts as stimulant and a mild diuretic. The beans, leaves, and fruit of more than 60 plants contain varying quantities of caffeine (3, 26); in those plants caffeine serves as a pesticide, killing or paralyzing insects that feed on the plants. Coffee, tea, and cocoa are the major plants containing caffeine that are cultivated. Guarana, kola nuts, and yerba maté are also cultivated for use as sources of caffeine in energy drinks and snacks.

Of the psychoactive substances consumed worldwide, caffeine is used the most widely. However, it is legal and unregulated unlike other psychoactives. The FDA classifies caffeine as a "Multiple Purpose Generally Recognized as Safe Food Substance" (21 CFR, Section 182.1180), with tolerance at 0.02%, stating that moderate caffeine intake produces no increased risk to health.

Sources of Caffeine

The common dietary sources of caffeine are coffee, chocolate, tea, and some soft drinks. The amount of caffeine in food products varies, depending on the serving size, the type of product, and the preparation method.

Natural Sources (26)

Cocoa (Theobroma cacao), a major ingredient in chocolate products, contains a small amount of caffeine. Cocoa's weak stimulant effect may also be due to a combination of the theobromine and theophylline it contains, as well as caffeine. The amounts of these compounds contained in chocolate products are too small for typical servings to create effects equal to those of coffee. Chocolate bars (in a typical 28-g serving) contain from 11 to 115 mg of caffeine.

Coffee beans (*Coffea* sp.) from which coffee are brewed constitute the primary source of caffeine. The caffeine content in coffee varies widely, depending on the type of coffee bean and the method of preparation; even beans from a given coffee bush can vary in their caffeine concentration. Roasted coffee beans contain 0.8–2.5% caffeine. Generally, dark-roast coffee has less caffeine than lighter roasts because the roasting process reduces the bean's caffeine content. Arabica coffee normally contains less caffeine than the Robusta variety. In general, one serving of coffee ranges from 64 mg for a single cup (30 ml) of espresso to about 145 mg for an 8-oz. ounce cup (237 ml) of automatic drip coffee.

Guarana (Paullina cupana), grown in South America, typically contains more caffeine than coffee beans (2-4.5% vs. 5%). In addition, guarana contains other stimulants such as theobromine and theophylline.

Kola nuts or *Cola* (*Cola nitida*) from trees in African rainforests also contains caffeine. Kola was once used in making cola soft drinks, but artificial flavorings are now generally used. Caffeine content ranges between 2 to 3.5%; also contains theobromine at 1.)-2.5% concentration. Some new energy drinks contain Kola nut extract (see the discussion below).

Tea (*Camellia sinensis*) fresh leaves contain about 4% caffeine. Tea beverages typically contain about 20 to 80 mg of caffeine per cup—about half the caffeine per serving of coffee. Black tea's caffeine content is higher than that of most other teas. Preparation affects brewed tea's caffeine content, although the color of brewed tea is not a good indicator of the amount of caffeine in the tea; for example, the Japanese green tea *Gyokuro*, a pale tea, contains much more caffeine than do dark teas like *Lapsang Souchong*, which has very little.

Taurine a functional food ingredient added to many energy drinks and energy products as a caffeine adjuvant. Caffeine and taurine are dissimilar. Whereas caffeine is a stimulant, taurine is an amino acid produced naturally by the body. Taurine supports neurological development and helps regulate blood constituents; it may also be an antioxidant.

Yerba maté (*Ilex paraguariensis*) contains xanthenes—stimulants in the same family as caffeine, theophylline, and theobromine, all of which found in coffee and chocolate. *Yerba maté's* caffeine content ranges from 0.3wt% to 1.7wt% dry. In addition it contains theobromine at 0.3-0.9% level. Although yerba maté products are sometimes marketed as "caffeine-free" alternatives to coffee and tea, such claims are based on assuming that "mateine"—the primary active xanthine in maté —is a caffeine stereoisomer. That is a chemical impossibility, however; in fact, chemical databases treat "mateine" as a caffeine synonym.

Commercial Sources with Added Caffeine

Caffeine is commonly added to *soft drinks*—typically, from 30 to 40 mg of caffeine per 12 oz. (355 ml) serving. The caffeine in these drinks originates either from the ingredients used or is an additive derived from the decaffeination of coffee or from chemical synthesis.

Energy drinks, with added caffeine, vitamins, taurine, guarana, kola nut, Yerba maté and herbal supplements, are sold to improve drinkers' performance and alertness. The additional ingredients may act in synergy to provide a stimulant effect greater than that provided by caffeine without them. In contrast to typical soft drinks, some contain as much as 200 mg of caffeine per 12 fl. oz. (355 ml) serving. In addition many energy drink brands are sold in larger serving size containers (16-20 fl. oz. - 474-592 ml).

Energy shots are a specialized kind of energy drink. Whereas most energy drinks are generally sold in 12 to 16 fluid oz. cans or bottles, energy shots are usually sold in 2 fluid oz. plastic bottles. Energy shots normally contain the same amount of caffeine, or other functional ingredients per container as their larger counterpart, and therefore they may be considered concentrated forms of energy drinks accounting for 11 percent of the energy drink market. As of June 2009, there are approximately 250 energy shot brands in the US, with Chaser 5-Hour Energy owning 78% of the market share. Energy shots are the fastest-growing part of the energy drink category and are stealing the momentum from their bigger – in package size – rivals (27). A niche is emerging within the energy shot space called micro shots. These are shots with 1-5 teaspoons of liquid.

Caffeinated alcoholic beverages are energy drink mixes with alcohol. Prior to 2008 over 40 products were marketed in the U.S. Various consumer groups complained that caffeine a stimulant reduced the drinkers' sense of intoxication and were marketed to young drinkers who were already more likely to have risky behavior in driving and other activities. In November 2009 The Food and Drug Administration notified manufacturers of caffeinated alcoholic beverages that they would have 30 days to prove "clear evidence of safety," or this product line would have to be taken off the market. At the time of preparation of this report it is unknown how many of these products are still sold. However, the leading brands Miller/Coors' Sparks and Anhaeuser Busch's Tilt that previously contained caffeine and guarana presently sold without any caffeinated ingredient.

In the United States, federal regulations stipulate that food, beverage and dietary supplement labels must list all ingredients, but the regulations do not require labeling the amount of caffeine in products. Table 1 lists the ingredients commonly listed on that the food and beverage labels that contain caffeine.

Table 1
Common Caffeine-Containing Ingredient and Label Terms

Common Name, Ingredient	Label Terms Identified
Caffeine	Caffeine, Caffeine anhydrous, Caffeine citrate, Citrated caffeine, Methylxanthine, Trimethylxanthine
Cocoa, cacao	Cocoa, *Theobroma cacao*, chocolate
Coffee	Coffee, caffeine
Green tea, black tea	Green tea, black tea, green tea extract, *Camellia sinensis*, *Theo sinensis*, *Camellia* sp.
Guarana	Guarana, *Paullina cupana*, Brazilian cocoa
Kola nut	Kola nut, cola seeds, *Cola nitida*
Yerba maté	Yerba maté, mate, *Ilex paraguariensis*

1. Caffeine Content of Food and Beverage Products

This section sets forth the caffeine content of food and beverage products. Two sets of data are presented:

1. Information based on the National Nutrient Database for Standard Reference (NDB) of the USDA's Nutrient Data Laboratory (39)
2. A wider range of values compiled from scientific publications, the Internet, trade associations data, and industry sources.

The National Nutrient Database (NDB)

The NDB provides broad information on food and beverage composition. NDB is well organized and conveniently accessible on the Internet. NDB Release 21 (39) which was issued in September 2008 includes nutrient value information for about 130 nutrients for 7,412 different foods and beverages, including caffeine values for 4,024 products. [1]

Despite this large volume of information, we found the NDB data to be of limited value for caffeine consumption studies because the NDB's primary objective is to provide information about the major essential nutrient food components. Because caffeine has no known nutritional role, the NDB data include only a few values for the primary dietary sources of caffeine—coffee, tea, cola, and energy drinks—but do present ample information for products (e.g., chocolates and sweets, snacks, dairy products) whose dietary contribution of caffeine is inconsequential. For example, the NDB provides caffeine content information for 209 chocolate items, which represent minor contributions to caffeine intake, but includes caffeine data for only 16 primary caffeine sources such as coffee and tea. Moreover, the NDB includes only one energy drink. Our research revealed that more than 150 energy drink products are currently sold in the United States.

The caffeine consumption estimates of the CDC's National Health and Nutrition Examination Study (NHANES) (38) survey and of the NPD Group (34), a Chicago based private market research firm, which are based on the NDB data, are shown below. We then supplement the NDB caffeine content data with more focused caffeine content data collected as part of the study. We believe the latter data series are more suited for estimating caffeine intake.

[1] NDB release 22 issued on December 14 2009 does not include caffeine data.

The Caffeine Content of Food and Beverages Covered in the NDB

Tables 2 through 13 present the caffeine contents of food and are compiled from the NDB (39). Data related to all caffeine-containing products were collected from the NDB, and assembled in the following 11 product groupings:

Coffee	Chocolate-flavored beverages
Tea	Sweets
Carbonated beverages	Snacks
Alcoholic beverages	Fast foods
Energy drinks	Baked products
Dairy products	

For each product, the tables present the following information:

- NDB reference number
- Name and description of the product
- Serving size—one or two alternative measures
- Caffeine content per serving
- Caffeine content in milligrams in 100 g of product.

Table 2
Caffeine Content of Coffee

NDB No.	Coffee	Measure 1			Measure 2			In 100 g
		Gram	Volume	Caffeine/mg	Gram	Volume	Caffeine mg	Caffeine/ mg
14209	Brewed from grounds, prepared with tap water	237	8 fl. oz.	95	180	6	72	40
14201	Brewed from grounds, prepared w/tap water, decaffeinated	237	8 fl. oz.	2				1
14210	Brewed, espresso, restaurant-prepared	30	1 fl. oz.	64				212
14204	Coffee & cocoa (mocha) powder, with whitener, low calorie sweetener, decaffeinated	6.4	1 tsp.	2				25
14214	Instant, regular, powder	1	1 tsp.	31	2	1 packet	63	3142
14215	Instant, regular, prepared with water	179	6 fl. oz.	47	29.8	1	8	26
14218	Instant, decaffeinated, powder	1.8	1 tsp.	2				122
14219	Instant, decaffeinated, powder, prepared w/water	179	6 fl. oz.	2	29.9	1	0	1
14203	Instant, regular, powder, half the caffeine	1	6 fl. oz.	16	2	1 packet	31	1571
14222	Instant, with chicory, powder	1.8	1 tsp.	37				2063
14223	Instant, with chicory, prepared with water	179	6 fl. oz.	37	29.9	1	6	21
14424	Instant, with sugar, mocha-flavor, powder	13	2 tbs.	47				360
14428	Instant, with sugar, cappuccino-flavor powder	13	4 tbs.	39				302

Table 3(continued)
Caffeine Content of Tea

NDB No.	Tea	Measure 1			Measure 2			In 100 g Caffeine mg
		Gram	Volume	Caffeine mg	Gram	Volume	Caffeine/mg	
14544	Brewed, prepared with distilled water	29.6	1 fl. oz.	6	178	6 fl. oz.	36	20
14352	Brewed, prepared with tap water, decaffeinated	178	6 fl. oz.	2	237	8 fl. oz.	2	1
14355	Brewed, prepared with tap water	29.6	1 fl. oz.	6	178	6 fl. oz.	36	20
14375	Instant, sweetened w/Na-saccharin, lemon-flavored, powder	1.6	2 tsp.	36	14.4	0.25 fl. oz.	323	2240
14356	Instant, sweetened w/Na-saccharin, lemon-flavored, powder, decaffeinated	1.6	8 fl. oz.	27				11
14376	Instant, sweetened w/Na-saccharin, lemon-flavored, prepared	238	8 fl. oz.	64	179	6 fl. oz.	20	35
14370	Instant, sweetened with sugar, lemon-flavored, without added ascorbic acid, powder	182	6 fl. oz.	8	23	3 tsp.	8	3
14371	Instant, sweetened with sugar, lemon-flavored, without added ascorbic acid, prepared	259	8 fl. oz.	226				124
14548	Instant, sweetened with sugar, lemon-flavored, with added ascorbic acid, powder	182	1 cup	9	23	3 tsp.	29	5
14357	Instant, sweetened with sugar, lemon-flavored, without added ascorbic acid, powder, decaffeinated	182	1 cup	1	23	3 tsp.	1	169
14353	Instant, unsweetened, powder, decaffeinated	0.7	2 tsp.	26				3680

Table 3 (concluded)
Caffeine Content of Tea

NDB No.	Tea	Measure 1			Measure 2			In 100 g
		Gram	Volume	Caffeine mg	Gram	Volume	Caffeine/mg	Caffeine mg
14366	Instant, unsweetened, powder	0.7	1 tsp	26				11
14367	Instant, unsweetened, powder, prepared	238	8 fl. oz	29	178	6 fl. oz.	19	366
14368	Instant, unsweetened, lemon-flavored, powder	1.4	1 tsp	1	11.3	2 tsp.	26.3	
14475	ARIZONA, RTD iced tea, with lemon flavor	30.6	1 fl. oz	5	227	8 fl. oz.	11	5
14476	LIPTON BRISK, RTD iced tea, with lemon flavor	245	1 serve	8	367	12 fl. oz.	7	2
14137	NESTLE, COOL NESTEA RTD ice tea lemon flavor	245	1 serve		368	12 fl. oz.	13	3
14601	WENDY'S, RTD, unsweetened, without ice							8

Table 4
Caffeine Content of Carbonated Beverages

NDB No.	Carbonated Beverage	Measure 1			Measure 2			In 100 g
		Gram	Fl. oz.	Caffeine/mg	Gram	Fl. oz.	Caffeine/mg	Caffeine/mg
14552	Chocolate-flavored soda	369	12	7	492	16	10	2
14416	Cola or pepper-type, low calorie w/aspartame	355	12	41	473	16	55	12
14166	Cola or pepper-types, low calorie w/ Na-saccharin	355	12	69	474	16	52	11
14400	Cola, contains caffeine	368	12	30	491	16	39	8
14149	Cola, reduced sugar, contains caffeine and sweeteners	355	12	53	473	16	71	15
14148	Cola, with higher caffeine	368	12	99	491	16	133	27
14144	Lemon-lime soda, contains caffeine	369	12	55	492	16	74	15
14153	Pepper-type, contains caffeine	368	12	37	491	16	49	10

Table 5
Caffeine Content of Alcoholic Beverages

NDB No.	Alcoholic Beverage	Measure 1			Measure 2			In 100 g
		Gram	Fl. Oz.	Caffeine/mg	Gram	Fl. Oz.	Caffeine mg	Caffeine/mg
12214	Liqueur, coffee, 53 proof	34.8	1	9	52	1.5	13	26
14415	Liqueur, coffee with cream, 34 proof	31.1	1	3	47	1.5	4	8
14534	Liqueur, coffee, 63 proof	34.8	1	9	52	1.5	14	26

Table 6
Caffeine Content of Energy Drinks

NPD No.	Energy Drink	Measure 1			In 100 g
		Gram	Fl. Oz.	Caffeine mg	Caffeine mg
14154	RED BULL, with added caffeine, niacin, pantothenic acid, vitamins B6 and B12	255	8.3	77	30
14156	RED BULL, sugar free, with added caffeine, niacin, pantothenic acid, vitamins B6 and B12	255	8.3	75	29

Table 7
Caffeine Content of Dairy Products

NPD		Measure 1		Caffeine	Measure 2		Caffeine	In 100 g
No.	Dairy Product	Gram	Volume	mg	Gram	Volume	mg	Caffeine/mg
01205	Cream substitute, flavored, liquid							3
01206	Cream substitute, flavored, powdered							3
42074	Frozen novelties, ice cream type, vanilla ice cream, light, no sugar added, chocolate coated							2
43541	Ice creams, chocolate, rich	148	1 cup					5
19114	Ice creams, chocolate, light	68	1 serve	1	100	1 unit	1	2
19270	Ice creams, chocolate	58	3.5 fl. oz.	2	66	0.5 cup	2	3
19899	Ice creams, regular, low carbohydrate, chocolate	58	3.5 fl. oz.	2				3
01102	Milk, chocolate, fluid, commercial, whole with added calcium	250	1 cup	5	1000	1 quart	20	2
01103	Milk, chocolate, fluid, commercial, reduced fat	250	1 cup	2	1000	1 quart	7	1
01104	Milk, chocolate, fluid, commercial, low fat	250	1 cup	5	1000	1 quart	20	2
01105	Milk, chocolate beverage, hot cocoa, homemade	250	1 cup	5	31	1 fl. oz.	1	2
01110	Milk shakes, thick chocolate	28	1 fl. oz.	1	300	10.6 fl. oz.	6	2
01202	Milk, chocolate, fluid, commercial, reduced fat,	250	1 cup	2	1000	1 quart	7	1
42131	Milk dessert, frozen, milk-fat free, chocolate	157	1 cup	4				3
16166	Soymilk, chocolate, unfortified	243	1 cup	5	31	1 fl. oz.	1	2
16168	Soymilk, chocolate, with added Ca, vitamins A & D	243	1 cup	5	31	1 fl. oz.	1	2
16227	Soymilk, chocolate and other flavors, light, with added calcium, vitamins A and D	243	1 cup	5	31	1 fl. oz.	1	2
01187	Yogurt, chocolate, nonfat milk							2
19393	Yogurts, frozen, chocolate, soft-serve	72	4 fl. oz.	2				3
42186	Yogurts, Frozen chocolate	174	1 cup	5				3

Table 8(continued)
Caffeine Content of Chocolate-Flavored Beverages

NPD No.	Chocolate-Flavored Beverage	Measure 1			Measure 2			In 100 g
		Gram	Volume	Caffeine mg	Gram	Volume	Caffeine mg	Caffeine/mg
14175	Beverage mix for milk, powder, without added nutrients	22	2-3 tsp	22				36
14177	Beverage mix, powder, prepared with whole milk	266	8 fl. oz.	8				3
14181	Chocolate syrup	39	2 tbsp	2	300	8 fl. oz.	17	6
14182	Chocolate syrup, prepared with whole milk	282	8 fl. oz.	5				2
14369	Chocolate-flavored drink, whey and milk based	224	8 fl. oz.	4				0
14458	Chocolate-flavor beverage mix for milk, powder, with added nutrients, prepared with whole milk	266	8 fl. oz.	2				0
14557	Chocolate-flavor beverage mix for milk, powder, w/added nutrients	22		2				8
43369	Chocolate-flavored drink, whey and milk based	244	8 fl. oz.	4	30.5	1 fl. oz.	0	1
14196	Cocoa mix, no sugar added, powder	19	0.67 fl. oz.		15	0.5 fl. oz.	3	19
14192	Cocoa mix, powder	28	3 tsp.	5				18
14194	Cocoa mix, powder, prepared with water	206	6 fl. oz.	5	34.3	1	1	2
14390	Cocoa mix, with aspartame, powder, prepared with water	192	6 fl. oz.	3	32.1	1	0	2
43343	Coffee and cocoa (mocha) powder, w/whitener, low cal. sweetener	6.2	1 tsp.	30				476
14422	Dairy drink mix, chocolate, reduced calorie, w/aspartame, powder	21		5				25
14423	Dairy drink mix, chocolate, reduced calorie, with aspartame, powder, prepared with water and ice	243	8 fl. oz.	5				2
43205	Instant breakfast powder, chocolate, not reconstituted	7.4	1 tbsp.	2	37	1 env.	9	25
43260	Instant breakfast powder, chocolate, sugar-free, not reconstituted	5.6	1 tbsp.	3	20	1 env.	10	52

Table 8 (concluded)
Caffeine Content of Chocolate-Flavored Beverages

NPD No.	Chocolate-Flavored Beverage	Measure 1			Measure 2			In 100 g
		Gram	Volume	Caffeine mg	Gram	Volume	Caffeine mg	Caffeine/mg
14315	Malted drink mix, chocolate, with added nutrients, powder	21	3 tsp.	6				28
14316	Malted drink mix, chocolate, with added nutrients, powder, prepared with whole milk	265	8 fl. oz.	6				2
14317	Malted drink mix, chocolate, powder	21	3 tsp.	8				37
14318	Malted drink mix, chocolate, powder, prepared w/whole milk	265	8 fl. oz.	8				3
19345	HERSHEY'S Genuine Chocolate Flavored Lite Syrup	35	2 tbsp.	2				6
14346	Shake, fast food, chocolate	282	12 fl. oz.	4	376	16 fl. oz.	5	1

Table 9(continued)
Caffeine Content of Sweets

NPD No.	Sweet Product	Measure 1 Gram	Measure 1 Size	Caffeine mg	Measure 2 Gram	Measure 2 Size	Caffeine mg	In 100 g Caffeine/mg
19124	Baking chocolate, Mexican, squares	20	1 tablet	3				14
19077	Baking chocolate, unsweetened, liquid	28.35	1 oz.	13				47
19078	Baking chocolate, unsweetened, squares	28	1 square	23	132	1 cup	106	80
19076	Candies, caramels, chocolate-flavor roll	40	6 pieces	3	64	1 bar	4	7
43031	Candies, chocolate covered, caramel with nuts	14	1 piece	3				19
43059	Candies, chocolate covered, dietetic or low calorie							9
19902	Candies, chocolate, dark, 45-59% cacao solids	28.35	1 oz.	12	141	1 bar	60	43
19903	Candies, chocolate, dark, 60-69% cacao solids	28.35	1 oz.	24	112	1 bar	96	88
19904	Candies, chocolate, dark, 70-85% cacao solids	28.35	1 oz.	23	101	1 bar	81	80
19905	Candies, chocolate, dark, not further specified	28.35	1 oz.	13				47
19268	Candies, dark chocolate coated coffee beans	40	1 serving	336				869
19379	Candies, fudge, chocolate marshmallow, from-recipe	20	1 piece	4	1229	60 pieces	218	18
19301	Candies, fudge, chocolate marshmallow, with nuts							31
19100	Candies, fudge, chocolate, prepared-from-recipe	17	1 piece	22				130
19101	Candies, fudge, chocolate, with nuts, prepared-from-recipe							7
19141	Candies, MASTERFOODS USA, M&M's Milk Chocolate Candies	208	1 cup	29	42	1.48 oz.	6	14
19148	Candies, MASTERFOODS USA, M&M's Peanut Butter Chocolate Candies	46	1.63 oz.	3	203	1 cup	12	6
19140	Candies, MASTERFOODS USA, M&M's Peanut Chocolate	54	1 bag	6	20	10 pieces	2	10
42183	Candies, MASTERFOODS USA, TWIX chocolate fudge cookie bards							10
19120	Candies, milk chocolate	168	1 cup	34	44	1 bar	9	20
19279	Candies, milk chocolate coated coffee beans							800
19126	Candies, milk chocolate coated peanuts	149	1 cup	21	40	10 pieces	6	14

Table 9 (continued)
Caffeine Content of Sweets

NPD No.	Sweet Product	Measure 1 Gram	Measure 1 Size	Caffeine mg	Measure 2 Gram	Measure 2 Size	Caffeine mg	In 100 g Caffeine/mg
19127	Candies, milk chocolate coated raisins	180	1 cup	220	10	10 pieces	12	122
19132	Candies, milk chocolate, with almonds	41	1.45 oz.	7	44	1 bar	8	18
19134	Candies, milk chocolate, with rice cereal	40	1 bar	8	47	1 bar	9	20
19143	Candies, MR. GOODBAR Chocolate Bar	49	1 bar	9	73	2.6 oz.	13	18
19701	Candies, semisweet chocolate, made with butter	170	1 cup	105	182	1 cup	113	62
19081	Candies, sweet chocolate	28.35	1 oz.	10	41	1 bar	27	66
19083	Candies, sweet chocolate coated fondant	43	1 patty	4	11	1 sm. patty	1	10
19064	Candies, TOOTSIE ROLL, chocolate-flavor roll	40	6 piece	3	6.6	1 piece		0
19182	Desserts, mousse, chocolate, prepared-from-recipe	202	0.5 cup	14	808	1 recipe	45	7
19220	Desserts, rennin, chocolate, dry mix	9	1 tbsp.	1				13
19240	Frostings, chocolate, creamy, dry mix	338	1 pack	23				6
19241	Frostings, chocolate, creamy, dry mix, prepared with butter							5
19372	Frostings, chocolate, creamy, dry mix, prepared w/margarine							5
19226	Frostings, chocolate, creamy, ready-to-eat	41	2 tbsp.	1				2
19409	Frostings, glaze, chocolate, prepared from recipe, with butter,							3
44061	Puddings, chocolate flavor, low calorie, instant, dry mix	9.9	1 serve	6	40	1.4 oz.	1	14
44258	Puddings, chocolate flavor, low calorie, regular, dry mix	9.9	1 serve	2	40	1 pack.	7	18
44258	Puddings, chocolate flavor, low calorie, regular, dry mix	9.9	1 serve	2	40	1 pack.	7	18
19123	Puddings, chocolate, dry mix, inst., prepared with 2% milk							1
19185	Puddings, chocolate, dry mix, inst., prepared with whole milk	147	5 cup	3	587	2 cups	12	2
19184	Puddings, chocolate, dry mix, instant	99	3.5 oz	7	25	0.5 cup	2	7
19188	Puddings, chocolate, dry mix, regular	99	3.5 oz	11	25	05 cup	3	11
19190	Puddings, chocolate, dry mix, regular, prepared with 2% milk							2
19189	Puddings, chocolate, dry mix, regular, prepared w/whole milk	142	0.5 cup	3	570	2 cups	11	2
19183	Puddings, chocolate, ready-to-eat	28.35	1 oz.	1	98	3.5 oz	2	2
19235	Puddings, chocolate, ready-to-eat, fat free							2

Table 9 (continued)
Caffeine Content of Sweets

NPD No.	Sweet Product	Measure 1		Caffeine	Measure 2		Caffeine	In 100 g
		Gram	Size	mg	Gram	Size	mg	Caffeine/mg
19213	Rennin, chocolate, dry mix, prepared w/ whole or 2% milk							1
19124	Baking chocolate, Mexican, squares	20	1 tablet	3				14
19166	Baking chocolate, unsweetened, liquid	28.35	1 oz.	13				47
19078	Baking chocolate, unsweetened, squares	28	1 square	23	132	1 cup	106	80
19076	Candies, caramels, chocolate-flavor roll	40	6 pieces	3	64	1 bar	4	7
43031	Candies, chocolate covered, caramel with nuts	14	1 piece	3				19
19902	Candies, chocolate, dark, 45-59% cacao solids	28.35	1 oz.	12	141	1 bar	60	43
19903	Candies, chocolate, dark, 60-69% cacao solids	28.35	1 oz.	24	112	1 bar	96	88
19904	Candies, chocolate, dark, 70-85% cacao solids	28.35	1	23	101	1 bar	81	80
19905	Candies, chocolate, dark, not further specified	28.35	1	13				47
19268	Candies, dark chocolate coated coffee beans	40	1 serve	336				869
19379	Candies, fudge, chocolate marshmallow, from-recipe	20	1 piece	4	1229	60 pieces	218	18
19301	Candies, fudge, chocolate marshmallow, with nuts							31
19100	Candies, fudge, chocolate, prepared-from-recipe	17	1 piece	22				130
19101	Candies, fudge, chocolate, with nuts, prepared-from-recipe							7
19141	Candies, MASTERFOODS USA, M&M's Milk Chocolate	208	1 cup	29	42	1.48 oz.	6	14
19148	Candies, MASTERFOODS USA, M&M's Peanut Butter							
19140	Candies, MASTERFOODS USA, M&M's Peanut Chocolate	54	1 bag	6	20	10 pieces	2	10
42183	Candies, MASTERFOODS USA, TWIX chocolate fudge							
19120	Candies, milk chocolate	168	1 cup	34	44	1 bar	9	20
19279	Candies, milk chocolate coated coffee beans							800
19126	Candies, milk chocolate coated peanuts	149	1 cup	21	40	10 pieces	6	14
19127	Candies, milk chocolate coated raisins	180	1 cup	220	10	10 pieces	12	122

Table 9 (continued)
Caffeine Content of Sweets

NPD No.	Sweet Product	Measure 1 Gram	Measure 1 Size	Caffeine mg	Measure 2 Gram	Measure 2 Size	Caffeine mg	In 100 g Caffeine/mg
19132	Candies, milk chocolate, with almonds	41	1.45 oz.	7	44	1 bar	8	18
19134	Candies, milk chocolate, with rice cereal	40	1 bar	8	47	1 bar	9	20
19143	Candies, MR. GOODBAR Chocolate Bar	49	1 bar	9	73	2.6 oz.	13	18
19896	Candies, REESE's Fast Break, milk chocolate,	56	1 bar	3				6
19152	Candies, ROLO Caramels in Milk Chocolate	48	1 pack	3	42	7 pieces	3	6
19080	Candies, semisweet chocolate	168	1 cup	104	182	1 cup	113	62
19701	Candies, semisweet chocolate, made with butter	170	1 cup	105	182	1 cup	113	62
19081	Candies, sweet chocolate	28.35	1 oz.	10	41	1 bar	27	
19083	Candies, sweet chocolate coated fondant	43	1 patty	4	11	1 sm. patty	1	10
19064	Candies, TOOTSIE ROLL, chocolate-flavor roll	40	6 pieces	3	6.6	1 piece		0
19182	Desserts, mousse, chocolate, prepared-from-recipe	202	0.5 cup	14	808	1 recipe	45	7
19220	Desserts, rennin, chocolate, dry mix	9	1 tbsp.	1				13
19240	Frostings, chocolate, creamy, dry mix	338	1 pack	23				6
19241	Frostings, chocolate, creamy, dry mix, prepared with butter							5
19372	Frostings, chocolate, creamy, dry mix, prepd. w/ margarine							5
19226	Frostings, chocolate, creamy, ready-to-eat	41	2 tbsp.	1				2
19409	Frostings, glaze, chocolate, prepared from recipe, w/butter,							3
44061	Puddings, chocolate flavor, low calorie, instant, dry mix	9.9	1 serve	6	40	1.4 oz.	1	14
44258	Puddings, chocolate flavor, low calorie, regular, dry mix	9.9	1 serve	2	40	1 pack	7	18
19123	Puddings, chocolate, dry mix, inst., prepared w/2% milk							1
19185	Puddings, chocolate, dry mix, inst., prepared w/whole milk	147	5 cup	3	587	2 cups	12	2

Table 9 (concluded)
Caffeine Content of Sweets

NPD No.	Sweet Product	Measure 1 Gram	Measure 1 Size	Caffeine mg	Measure 2 Gram	Measure 2 Size	Caffeine mg	In 100 g Caffeine/mg
19184	Puddings, chocolate, dry mix, instant	99	3.5 oz.	7	25	0.5 cup	2	7
19188	Puddings, chocolate, dry mix, regular	99	3.5 oz.	11	25	0.5 cup	3	11
19190	Puddings, chocolate, dry mix, regular, prepared w/ 2% milk							2
19132	Candies, milk chocolate, with almonds	41	1.45 oz.	7	44	1 bar	8	18
19134	Candies, milk chocolate, with rice cereal	40	1 bar	8	47	1 bar	9	20
19143	Candies, MR. GOODBAR Chocolate Bar	49	1 bar	9	73	2.6 oz.	13	18
19896	Candies, REESE's Fast Break, milk chocolate,	56	1 bar	3				6
19152	Candies, ROLO Caramels in Milk Chocolate	48	1 pack	3	42	7 pieces	3	6

Table 10
Caffeine Content of Snacks

NPD No.	SNACKS	Measure 1 Gram	Measure 1 Size	Caffeine mg	Measure 2 Gram	Measure 2 Size	Caffeine mg	In 100 g Caffeine/mg
25015	Formulated Bar, MASTERFOODS USA, SNICKERS Marathon Protein Performance Bar, Caramel Nut Rush	80	1 bar	22				28
25016	Formulated Bar, MASTERFOODS USA, SNICKERS Marathon Energy Bar, all flavors	44	1 bar	2	55	1 bar	3	6
19026	Granola bars, soft, coated, milk chocolate coating, peanut butter	28.35	1 oz.	2	37	1 bar	2	6
42139	Granola bar, soft, milk chocolate coated, peanut butter	28.35	1 oz.	1				3
42272	Granola bar, with coconut, chocolate coated	28.35	1 oz.	12				41

Table 11
Caffeine Content of Fast Food Products

NPD No.	Fast Food Product	Measure 1		Caffeine	In 100 g
		Gram	Size	mg	Caffeine/mg
21027	Brownie, Fast Foods	60	1 piece	1	2
21030	Cookies, Chocolate Chip, Fast Foods	55	1 box	6	11
21412	Light Ice Cream, Soft Serve, Blended	348	12 fl. oz.	50	14
21413	Light Ice Cream, Soft Serve, Blended With Cookie Pieces With Milk Chocolate Candies	237	12 fl. oz.	4	1
21033	Sundae, Hot Fudge, Fast Foods	158	1 sundae	77	49

Table 12 (continued)
Caffeine Content of Baked Products

NPD No.	Baked Product	Measure 1		Caffeine	Measure 2		Caffeine	In 100 g
		Gram	Weight	mg	Gram	Weight	mg	Caffeine/mg
18097	Cake, chocolate, dry mix, pudding-type	28.35	1 oz.	2	517	18.25 oz.	31	6
18099	Cake, chocolate, dry mix, regular	28.35	1 oz.	3	524	18.50 oz.	58	11
18112	Cake, German chocolate, dry mix, pudding-type	28.35	1 oz.	2	517	18.25 oz.	36	6
18127	Cake, snack cakes, crème-filled, chocolate w/frosting	28.35	1 oz.	2	50	1 cake	3	6
18452	Cake, snack cakes, cupcakes, chocolate, with frosting, low-fat	28.35	1 oz.	1	43	1 cake	1	2
18157	Cookies, chocolate wafers	28.35	1 oz.	2	112	1 cup	8	7
18158	Cookies, chocolate chip, commercially prepared, regular, lower fat	28.35	1 oz.	2				7
18159	Cookies, chocolate chip, commercially prepared, regular, higher fat, enriched	12.2	1 cookie	1	10	1 cookie	1	11
18161	Cookies, chocolate chip, dry mix	28.35	1 oz.	3				12
18163	Cookies, chocolate chip, refrigerated dough	29	1 portion	3				9
18165	Cookies, chocolate chip, prepared from recipe, made with margarine	28.35	1 oz.	5				16
18166	Cookies, chocolate sandwich, w/crème filling, regular	11.5	1 cookie	1	34	3 cookies	4	13
18167	Cookies, chocolate sandwich, with crème filling, regular, chocolate-coated	28.35	1 oz.	0	17	1 cookie	0	1
18168	Cookies, chocolate sandwich, with extra crème filling	28.35	1 oz.	1	13	1 cookie	1	5
18174	Cookies, graham crackers, chocolate-coated	28.35	1 oz.	13	14	1 cracker	6	46
18176	Cookies, marshmallow, chocolate-coated (includes marshmallow pies)	28.35	1 oz.	1	39	1 pie	2	5

Table 12 (concluded)
Caffeine Content of Baked Products

NPD No.	Baked Product	Measure 1 Gram	Measure 1 Weight	Caffeine mg	Measure 2 Grams	Measure 2 Weight	Caffeine mg	In 100 g Caffeine/mg
18198	Cookies, chocolate chip, commercially prepared, special dietary	28.35	1 oz.	2	7	1 cookie	1	8
18199	Cookies, chocolate sandwich, with crème filling, special dietary	28.35	1 oz.	1	10	1 cookie	0	3
18249	Doughnuts, cake-type, plain, chocolate-coated or frosted	28.35	1 oz.	0	43	1 doughnut	1	2
18251	Doughnuts, cake-type, chocolate, sugared or glazed	28.35	1 oz.	0	60	1 doughnut	1	1
18257	Éclairs, custard-filled with chocolate glaze, from recipe	28.35	1 oz.	1	112	1 piece	2	2
18312	Pie, chocolate mousse, prepd. from mix, no-bake type	28.35	1 oz.	0				1
18398	Pie crust, cookie-type, prepared from recipe, chocolate wafer, chilled	223	1 crust	11	28	1 piece	1	5
18943	Pie Crust, Cookie-type, Chocolate, Ready Crust	182	1 crust	28				15

Caffeine Content of Food and Beverage Products, Based on Comprehensive Data Search

The author augmented NDB nutrient database by compiling information in the public domain on the caffeine content of foods, beverages, drugs and dietary supplements. This information was assembled by reviewing technical publications and the Internet for pertinent data, and by conducting telephone interviews with trade associations and industry experts.

Caffeine content data are presented in Tables 13-24, arranged by the following product segments:

- Coffee beverages: Tables 13
- Tea beverages: Tables 14
- Carbonated beverages: Tables 15
- Energy drinks and energy shots: Table 16
- Caffeinated Alcoholic beverages: Table 17
- Caffeinated waters: Table 18
- Dairy products: Table 19
- Chocolates, and foods and confectionaries containing chocolate: Table 20
- Miscellaneous snack foods, gums and mints: Table 21
- Drugs[1]: Table 22
- Weight loss pill supplements[1]: Table 23
- Caffeine Pill Product1[1]: Table 24

Please note that many product names, particularly those for energy drinks (Table 16), are not spelled according to standard rules. These product names are presented exactly as they are appear on the product label and are not misspelled.

Table 13 (continued)
Caffeine Content of Coffee Beverages

Representative Coffee Products	Serving Size Fluid oz.	Caffeine Content per Serving milligrams	Caffeine Content in 100 ml milligrams
Brewed, Decaffeinated, Generic Coffee	8	5.6	2
Brewed, Generic	8	135	57
Cappuccino	4	100	85
Drip, Automatic	8	145	61
Drip, Non-automatic	5	124	84
Dunkin's Donuts, Regular Coffee	16	206	44
Einstein Bros., Espresso	1	75	256
Einstein Bros., Regular	16	300	63
Espresso, Generic	1	50	170
Instant, Decaffeinated	8	2.5	1
Instant, Generic Coffee	8	57	24
Java Monster, Fortified with Guarana	15	160	36
McDonald's Large Coffee	16	145	31
McDonald's Small Coffee	12	109	31
Percolated, Automatic	8	187	79
Percolated, Non-automatic	8	173	73
Shock Coffee Triple Latte, RTD	8	231	97
Silk Soylatte with Soymilk	8	55	23
Starbucks Tall Coffee Americano	16	330	70
Starbucks Bottled Frappuccino RTD	9.5	90	32

Table 13 (concluded)
Caffeine Content of Coffee Beverages

Representative Coffee Products	Serving Size	Caffeine Content	
		per Serving	in 100 ml
	Fluid oz.	milligram	
Starbucks Brewed, Grande	16	320	68
Starbucks Espresso, Decaffeinated	1	4	14
Starbucks Espresso, Doppio	2	150	254
Starbucks Espresso, Solo	1	75	249
Starbucks Grande Cappuccino	16	150	32
Starbucks Grande Coffee, Regular	16	330	70
Starbucks Grande Coffee Americano	16	225	48
Starbucks Grande Coffee Latte	16	150	32
Starbucks Grande Decaf	16	12.7	1
Starbucks Grande Iced Espresso Drinks	16	150	32
Starbucks Short Coffee	8	180	76
Starbucks Tall Coffee	12	270	73
Starbucks Tall Coffee Cappuccino	12	75	21
Starbucks Tall Coffee Latte	12	75	21
Starbucks Tall Coffee Mocha	12	95	8
Starbucks Vanilla Latte, Grande	16	150	32
Stok Black Coffee Shots	0.4	40	308
Tim Horton's Large Coffee	20	200	34
Tim Horton's Large English Toffee	10	112	19
Tim Horton's Small Coffee	10	100	34
Tim Horton's Small French Vanilla	10	56	19

Table 14 (Continued)
Caffeine Content of Tea Beverages

Representative Tea Products	Serving Size Fluid oz.	Caffeine Content per Serving milligram	Caffeine Content in 100 ml milligram
Generic Black Tea 1 min. brew	8	45	19
Generic Black Tea 1 tea bag	8	40	17
Generic Black Tea 3 min. brew	8	67	28
Generic Black Tea 5 min. brew	8	74	31
Generic Decaf. Tea 1 tea bag	8	2	1
Generic Decaffeinated 5 min. brew	12	2	1
Generic Green Tea 1 min. brew	8	22	9
Generic Green Tea 3 min. brew	8	43	18
Generic Green Tea 5 min. brew	8	50	21
Generic Green Tea 1 tea bag	8	20	8
Generic Ice Tea	12	38	11
Generic Instant	6	33	19
Generic Instant, lemon flavored	6	38	21
Generic Oolong 1 min. brew	8	21	9
Generic Oolong 3 min. brew	8	48	20
Generic Oolong 5 min. brew	8	64	27
Generic Oolong Tea 1 tea bag	8	30	13
Generic White Tea	8	15	6
Generic White Tea 1 tea bag	8	15	6

Table 14 (concluded)
Caffeine Content of Tea Beverages

Representative Tea Products	Serving Size Fluid oz.	Caffeine Content per Serving milligram	Caffeine Content in 100 ml milligram
Lipton Iced Teas[1]	16	40	8
Morning Thunder Tea	8	40	17
Nestea	12	26	7
Nestea Iced Tea	16	34	7
Nestea Peach Green Tea	20	42.4	7
Nestea Pure Lemon Sweetened	16	22	5
Nestea Sweetened Lemon Ice Tea	20	27.5	5
Oregon Chai concentrate	4	32.5	28
Pacific Chai	12	100	28
Snapple Elements	18	108	20
Snapple Iced Tea Regular or Diet[2]	16	42	9
Snapple, Just Plain Unsweetened	16	18	4
Snapple, Kiwi Teawi	16	10	2
Starbucks Tazo Chai Latte Grande	16	100	21
Lipton Brisk, all varieties RTD	12	9	3
Arizona Iced Tea black RTD	16	32	7
Arizona Iced Tea green RTD	16	15	3
Crystal Light Iced Tea, RTD	8	11.25	5
Lipton Brisk, all varieties RTD	12	9	3

[1] Lipton markets a wide range of tea based RTD beverages. The caffeine content of each flavor is different - making it difficult to generalize. However an average is about 40 mg caffeine per 16oz serving.
[2] Snapple produces large variety of different tea flavors. New flavors are constantly being produced, and old flavors are often discontinued at any time. Caffeine content varies however; most of the teas contain 42 mg of caffeine per 16 oz. serving.

Table 15 (continued)
Caffeine Content of Carbonated Beverages

Representative Products	Serving Size	Caffeine Content per Serving	Caffeine Content in 100 ml
	Fluid oz.	milligram	
A&W Cream Soda	12	29	8
A&W Cream Soda Diet	12	22	6
Ale Eight One	12	37	10
Barq's Root Beer or Floatz	12	23	6
Big Red	12	34	10
Cheerwine Regular or Diet	12	48	14
Cherry Coke	12	34	10
Cherry Coke Diet	12	34	10
Coca-Cola C2	12	34	10
Coca-Cola Classic	12	35	10
Coca-Cola Diet, Regular or Vanilla	12	38	11
Coca-Cola Zero	12	35	10
Coke Diet, with Lemon or Lime	12	40	11
Coke Diet, with Splenda	12	34	10
Inca Cola, Regular or diet	8	25	11
Dr. Pepper, Regular, Diet or Code Red	12	41	12
Faygo Cola or Faygo Mist	12	41.7	12
Mello Yellow, Regular, Cherry or Melon	12	52	15
Mountain Dew Regular or Diet	12	55	16
Mountain Dew Baja Blast	8	36	15
Mr. Pibb, Zero, Extra or Diet	12	41	12
Pepsi Cola	12	38	11
Pepsi Cola Diet or Diet Wild Cherry	12	36	10
Pepsi Cola Diet Max	12	69	19
Pibb Flash, Zero or Extra	8	27	11
RC Cola	12	45	13
RC Cola, Diet	12	47	13
Red Rock Cola	12	26	7
Ruby Red Squirt, Regular or Diet	12	39	11
Shasta Cola, Regular or Diet	12	43	12
Sunkist Orange Soda Regular or Diet	12	42	12
TaB	12	47	13

Table 15 (concluded)
Caffeine Content of Carbonated Beverages
(Fountain Coca-Cola)

Establishment	Serving Size Fluid oz.	Caffeine Content per Serving milligram	Caffeine Content per 100 ml milligram
Burger King	16	41.5	9
Wendy's	16	41.5	9
McDonald's	16	44	9
Chik-fil-A	16	48.4	10
Fast Trac	16	45.5	10
Steak N Shake	16	43.5	9
Atlanta Bread Company	16	40.9	9
Checkers	16	46.9	10
Citgo Food Market	6	48.4	10

Source: McCusker, R.R. et al. 2006

Table 16 (continued)
Caffeine Content of Energy Drinks and Energy Shots

Energy Drinks	Serving Size Fluid Oz.	Caffeine Content[1] per Serving (milligram)	Caffeine Content[1] In 100 ml. (milligram)	Sources[2]
180	8.2	90	37	G
925 Energy Shot[3]	2	120	203	C, GrT, Y
Afri Cola	12	89	25	C
All City NRG	16	300	63	C, G, GrT
Amazon Energy Drink	12	120	34	C
Ammo[3]	1	171	570	C
AMP	8.4	75	30	C,G,T
AMP Lighting Charge	16	160	34	C, G, T
AMP Lighting Charge	16	160	34	C,G,T
AMP Overdrive	16	142	30	C,G,T
AMP Tall Boy	16	143	30	C,G,T
AriZona Caution Energy Drink	16	200	42	C,T
AriZona Extreme Energy Shot	8.3	100	41	C,G,T
AriZona Green Tea Energy	16	200	42	C, GrT, G,T
Atomic Dogg	16	200	42	C, GrT, G,T
Battery	11.2	106	32	C,G
Bawls	10	67	23	C, G
Bawls extra	16	150	32	C, G
Bazza High Energy Drink	16.9	150	30	GrT, G, CN
Beaver Buzz	8.3	110	45	C,G,T
Blow Energy Drink Mix	8	240	101	C,T,CN
Bomba Energy	8.4	75	30	C,T
Boo-Koo Energy	24	360	51	C,T
Booty Sweat Energy Drink	8.4	90	32	C,T
Brawndo	16	200	42	C,G
Bull Tonic effervescent tablet	8	160	68	C
Bump	10.5	197	63	GrT, T
Celsius	12	200	56	C, G, GrT
Charge supper shot[3]	2	200	339	C
Cheervine	12	47.5	13	C
Cocaine	8.4	280	113	C, T, G
Cougar Energy Double shot	2.5	150	203	C
Crunk	8.3	100	41	C, G, GrT
Crystal Light Energy, powder	16	120	25	C
Diablo	8.4	95	38	G

[1]Caffeine content includes caffeine from all sources.

[2] C=caffeine, G=Guarana, GrT=Green tea extract, T=Taurine, CN=Cola nut extract, Y=Yerba maté extract.

[3] Energy Shots

Table 16 (continued)
Caffeine Content of Energy Drinks and Energy Shots

Energy Drinks	Serving Size Fluid Oz.	Caffeine Content[1] per Serving milligram	Caffeine Content[1] In 100 ml. milligram	Source[2]
Dopamine Energy Drink	8.4	120	48	C,G,T
Eviga RTD	12	100	28	C, GrT, T
Extreme Energy 5-hour Shot[3]	2	220	373	C, GrT, T
FRS Antioxidant Health Drink	11	38	12	C, GrT
Full Throttle	16	144	30	C, G
Full Throttle Coffee + Energy	15	128	29	Coffee, C,G
Game Juice	16.9	38	8	C,T
Go Fast	11.9	120	34	C,G
Go Girl	12	150	42	C,
Guru Energy Drink	8.3	125	51	G
H2O Blast - dry powder in packets	16	100	21	C
Hansen's Energy Pro	8.3	57	23	C
Havoc	8.4	52	21	C,T
Health Energy Potion[3]	2	160	271	C
Hiball Energy	10	75	25	C,G,T
Howling Monkey	16	160	34	C, G, GrT, T
Hydrive	11	121	37	C,T
Hydrive X	16	145	31	C,T
Hype	8.4	80	32	C,G,T
Inko'sWhite tea Energy	15.5	184	40	GrT, G,
Java Chai RTD	8	120	51	Tea, C, T
Java Monster	15	160	36	Coffee, C,G
Jolt Cola	23.5	280	40	C
Jolt Endurance Shot[3]	2	200	339	C,G,T
Jolt Energy	23.5	260	40	C,G,T
Jones Energy	16	100	21	C
Kaboom Infinite Energy	8	95	40	G, GrT
KMX	8.4	33	13	C, G
Mana Energy Potion[3]	1.4	160	400	C
Monster Energy	16	160	34	C,G,T
Monster Hitman Sniper	16	240	270	C,G,T
Mountain Dew Game Fuel	20	120	20	C
Morning Spark, powder	16.9	170	34	C
Naked Juice Energy Smoothie	15.2	81.7	18	G, GrT

[1]Caffeine content includes caffeine from all sources. [2]C=caffeine, G=Guarana, GrT=Green tea extract, T=Taurine. [3] Energy Shots

Table 16 (continued)
Caffeine Content of Energy Drinks and Energy Shots

Energy Drinks	Serving Size Fluid Oz.	Caffeine Content[1] per Serving milligram	Caffeine Content[1] In 100 ml. milligram	Source[2]
No Fear Bloodshoot	16	174	37	C,G,T
NOS	16	280	59	C, T
OnGo Energy Shot[3]	2	177	300	C
Pimp Juice	8.3	81	33	G,T
Player Aid Energy Shot[3]	2	120	203	C, GrT
Power Edge, powder	8	80	34	C,T
Power Horse	8.5	80	32	C,T
Rage	16	200	42	G,T
NOS Power shot, concentrate[3]	2	125	212	C,T
Red Bull, Regular or Sugar-free	8.3	80	33	C, T
Red Bull Energy Shoot[3]	2	80	136	C, T
Red Celeste, Regular or Diet	8.3	75.2	30	C
Red Devil	8.4	41.8	17	C,T
Redine Power Rush RTD	2.5	350	473	C,C, GrT, Y
Redine Princess	8	250	105	C,C, GrT, Y
Redine RTD	8	250	105	C,C, GrT, Y
Rip It	8	100	42	C, T
Rockstar	16	160	34	C,G,T
Rockstar Citrus Punched	16	240	51	C,G,T
Rockstar Energy Cola	16	150	32	C,G,T
Rockstar Juiced	16	160	34	C,G,T
Rockstar Punched Guava	22	330	51	C,G,T
Rockstar Roasted	15	225	51	C,G,T
Rockstar Zero Carb	16	240	51	C,G,T
Rubyy Blood Orange Energy	12	80	23	C,G
Rumba Energy Juice	16	170	36	C,G,T
Rush Energy	8.3	50	20	C,T
Shark	8.4	80	32	C,G,T
Slam Energy Drink[3]	2	107	181	C,T

[1]Caffeine content includes caffeine from all sources.
[2]C=Caffeine, G=Guarana, GrT=Green Tea Extract, T=Taurine, Y=Yerba Mate Extract.
[3] Energy Shots

Table 16 (concluded)
Caffeine Content of Energy Drinks and Energy Shots

Energy Drinks	Serving Size Fluid Oz.	Caffeine Content[1] per Serving milligram	Caffeine Content[1] In 100 ml. milligram	Source[2]
SoBe Adrenaline Rush	8.3	79	32	C,G,T
SoBe Energy Citrus	20	83	14	C,G,T
SoBe Essential Energy	16	96	20	C,G
SoBe Green Tea	20	35	6	GrT, G
SoBe No Fear	16	141	37	C,G,T
SoBe No Fear Gold	16	174	37	C,G,T
Spark, powder	8	120	51	C
Spike Shooter	8.4	300	121	C
Spike Shotgun	16	350	74	C
Starbucks Double-shot Coffee	15	146	33	T,G
TaB Energy	12	95	27	C,GT
T-Fusion Energy Tea	16	46.5	10	G,T, tea
Vamp	16	240	51	C,G,T
Vault, Vault Zero, or Vault Red Blitz	8	47	20	C
Venom Death Adder	16	160	34	C,G,T
Ziz-ZaZZ Explosive Energy Powder	16	200	42	GrT,

[1]Caffeine content includes caffeine from all sources.
[2] C=caffeine, G=Guarana, GrT=Green tea extract, T=Taurine, Y=Yerba Mate extract.

Table 17
List of Caffeinated Alcoholic Beverages

Representative Products[1]	Caffeine per Serving
24/Seven	Mix Master Beverage Co
3AM Vodka	Sovereign Brands
3Sum	United Brands Company
808 Mango Beat	808 Spirits Co.
A:M Carpe Noctern	Cold Spring Brewing Company
Agwa De Bolivia	MHW, Ltd and Niche Import Co
Belevedere IX	Moet Hennessey/Millennium Import LLC
Booya Espresso Silver Tequila with Caffeine	Gaamm Imports Inc.
Catalyst	Catalyst Beverage Company
Everglo Vodka	Wingard USA (Importer)
Evil Eye	Melanie Brewing Co
Four, Four Loko and Four Maxed	Phusion Projects LLC
Gravity Vodka	Shotpak Vodka
Gruv Malt Beverage with Guarana	Gluek Brewing Company
High Gravity Core	Charge Beverages Corporation
Ithaca Eleven Malt Beverage with Coffee	Ithaca Beer Co.
Joose	United Brands Company, Inc
Liquid Charge	Charge Beverages Corporation
Liquid Core	Charge Beverages Corporation
Lotus Vodka	Delicious Brands Inc.
Max Fury	United Brands Company
Max Live	United Brands Company
Max Vibe	United Brands Company
Mobius Lager	Thomas Creek Brewery, LLC
Moonshot	New Century Brewing Company
P.I.N.K. Gin, Rum, Sake, Tequila, Vodka and White Whiskey	The P.I.N.K. Spirits Company
Products: Hard Wired	Hard Wired Brewing Company, LLC
Rockstar Twenty-one	Rockstar, Inc.
Slingshot Party Gel	Liquid Manufacturing LLC
Smirnoff Raw Tea Malt Beverage	Diageo North America, Inc
Torque	Point Blank Beverages Co.
V2 Vodka with Caffeine,	Wingard USA (Importer)
Vicious Vodka with Caffeine	LeVecke Corporation
Wide Eye	Constellation Brands
XZO Vodka with Caffeine, Taurine, and Guarana	Rizer Spirits Inc.

[1]In November 2009 The Food and Drug Administration notified manufacturers of caffeinated alcoholic beverages that they would have 30 days to prove "clear evidence of safety," or this product line would have to be taken off the market. At the time of preparation of this report it is unknown how many of these products are still sold. However, the leading brands Miller/Coors' Sparks and Anhaeuser Busch's Tilt that previously contained caffeine and guarana presently sold without any caffeinated ingredient.

Table 18
Caffeine Content of Caffeinated Waters

Energy Drinks	Serving Size Fluid Oz.	Caffeine Content per Serving milligram	Caffeine Content In 100 ml. milligram	Source[1]
Aqua Blast	16.9	90	18	C
Aqua Java	16.9	50-60	10-12	C
Clearly Canadian Daily Energy	20	80	16	C, T
Java Water	16.9	125	25	C
Krank 20	16.9	100	20	C
O Infused Water	16	64	14	C,G
Vital Lifestyle Water -	20	60	10	CT
Vitamin Water Energy Citrus	20	42	7	C,G
Water Joe	16.9	60-70	12-14	C

[1]Caffeine content includes caffeine from all sources; [2]C=caffeine, G=Guarana, T=Taurine.

Table 19
Caffeine Content of Dairy Products

Representative Products	Serving Size	Caffeine Content per Serving milligram	Caffeine Content in 100 gm milligram
Ben and Jerry's Fair Trade Coffee Ice Cream	8 oz. cup	70	30
Ben&Jerry Yogurt, Frozen, Coffee Flavor No-fat	8 oz. cup	85	36
Breyer's All Natural Coffee Ice Cream	8 oz. cup	30	13
DANONE Coffee Yogurt	6 oz. cup	36	20
Edy' Grand Espresso Chip Ice Cream	8 oz. cup	90	38
Generic Chocolate Ice Cream	50 g	4	8
Generic Chocolate Milk Beverage	8 oz.	5	2
Generic Cocoa Beverage	5 oz.	4	3
Haagen-Dazs Coffee Ice Cream	8 oz. cup	48	20
Starbucks Coffee Ice Cream	8 oz. cup	60	25
Starbucks Frappuccino Bar, Ice Cream	bar 80 g	30	38

Table 20
Caffeine Content of Chocolates, Foods and Confectionaries Containing Chocolate

Representative Products	Serving Size weight	Caffeine Content per Serving milligram	Caffeine Content in 100 gm milligram
Baker's baking chocolate,	1 oz.	25	88
Butterfinger Bar	1 bar, 61 g	2.4	4
Chocolate brownie	1.25 oz.	8	23
Chocolate cake 1 slice	92 g	14	15
Chocolate Chip Cookie	30 g	4	13
Crackheads 2 Chocolate Covered Whole Coffee beans	per box	600	NA
Crackheads chocolate covered whole coffee beans	per box	200	NA
Dark chocolate	1 oz.	20	71
Hershey's cocoa dry	1 oz.	70	247
Hershey's Cocoa mix	1 oz.	4	14
Hershey's cocoa mix, powder	1 oz.	5	18
Hershey's Cocoa, dry	1 oz.	70	247
Hershey's Kit Kat Bar	46 g	5	11
Hershey's milk bar	1 bar 1.5 oz.	10	24
Hershey's special dark	1 bar 1.5 oz	31	73
Milk chocolate	1 bar, 1 oz.	6	21
Mr. Goodbar	1 bar 50 g	5	10
Nestlé Crunch Bar	40 g	10	25
Nestlé Raisinets	10 pieces 10 g	2.5	25
Pudding, chocolate, ready-to-eat	4 oz.	6	5
Pudding, Jell-O Pop, Chocolate	1 bar 77 g	2	3
Reese's Peanut Butter Cups Candy	per cup	4	NA
Semi-sweet chocolate	1 oz.	18	63
Shock a Lots Chocolate Coffee Beans	per bean	20	
Sweet chocolate	1 bar 1.45 oz.	27	66
Unsweetened chocolate	1 oz.	25	88

Table 21
Caffeine Content of Miscellaneous Snack Foods, Gums and Mints

Representative Products	Serving Size	Caffeine Content per Serving (Milligram**)	Caffeine Content In 100 gram Serving (Milligram**)	Source*
Engobi's Energy Go Bites Chips	1.5 oz. bag	140	329	C
Jelly Belly Extreme Sport Beans	1 oz. bag	50	176	C
Kickbutt Amped Energy Ball	10 g ball	40	400	G, T
NRG Potato Chips	50 g bag	175	350	C, T
Sumseeds, Sunflower Seeds	3.5 oz. bag	120	120	C, T
Headshot Cocoa Bar	50 g bar	22	44	G
Pit Bull Energy Bar, Cookie Dough Bar	per bar	165	NA	C, G, T
Redline Gel Cups	per capsule	90	NA	C, GrT
Buzz Bites Chocolate Chews	6.1 g chew	100	1639	C, T
KickBrix Energy Chews	per chew	90	NA	C, T
Mad-Croc Energy Chews	per chew	8	NA	C, T
Über Cube Chocolate Chew	per chew	100	NA	C, T
Black Black Gum	per gum	5	NA	C, O
Blitz Energy Gum	per gum	55	NA	C, T
Go Fast Energy Gum	per gum	100	NA	C
Jolt Gum	per gum	12.7	NA	C, G
Mad-Croc Energy Gum	per gum	40	NA	C. T
Mini Thin Rush Gum	per gum	40	NA	C
Peppgum Gum	per gum	77	NA	C
Stay Alert, Gum	per gum	100	NA	C
Think Gum	per gum	10	NA	G
Movit Gummies	per pack	32	NA	G, T
Loud Truck Energy Gummies	1 oz. pack	32	90	G

*C=Caffeine, G=Guarana, T=Taurine, O=Oolong Tea

**The weight of several products is unavailable; therefore, for those items (shown as NA) caffeine content is shown only as per serving.

Table 21 (concluded)
Caffeine Content of Miscellaneous Snack Foods, Gums and Mints

Representative Products	Serving Size	Caffeine Content per Serving	Caffeine Content In 100 gram Serving	Source*
		Milligram**		
Foosh Energy Mints	per mint 1.8 g	100	5555	C, T
Bawls Mints	per mint	5	NA	C
M-60 Energy Mints	per mint	7	NA	C
Oral Fixation Night Light Mints	per mint	11.5	NA	C
Penguin Mints	per mint	7	NA	C
Penguin Red Mints	per mint	7	NA	C
Penguin Chocolate Mints	per mint	7	NA	C
Revive Mints	per mint	85	NA	C, G, GrT
Warp Energy Green Tea Lemon-Lime Mints	per mint	10	NA	G
Warp Energy Mints	per mint	10	NA	C, GrT
XTZ Energy Mints	per mint	15	NA	C
Zingos Mints	per mint	15	NA	C
Nestlé's After-eight Mint	per mint 4 g	0.8	20	C
GU Energy Gel	per packet	20	NA	C, CN
Morning Spark Energy Instant Oatmeal	per packet	60	NA	C
Butterfinger Buzz, candy	60 g package	80	133	C
Alien Energy Jerky	3.5 oz. piece	110	110	C, G
Cliff Shot Bloks candy	10 g piece	16.7	167	GrT
Turbo Truffle	per piece	150	NA	C, Cocoa
VE2 Energy Gum	per piece	80	NA	C, G
Bioplus Booster Tonic	per piece	90	NA	C
Diablo Energy Strips	per strip	25	NA	G
Koru Instant Energy Strips	per strip	40	NA	C
NRage Energy Strips	per strip	20	NA	C
Reload Energy Strips	per strip	20	NA	G
Umph, Effervescent Tablet	per tablet	99	NA	C, G

*C=Caffeine, G=Guarana, GrT=Green Tea, T=Taurine, CN=Cola Nut
**The weight of several products is unavailable; therefore, for those items (shown as NA) caffeine content is shown only as per serving.

Table 22
Caffeine Content of Drugs

Representative Products	Serving Size tablet or capsule	Caffeine per Serving milligram
Anacin	2	64
Aspirin Bayer Select Maximum Strength	1	65
Cafergot	1	100
Darvon Compound-65	1	32.4
DHCplus	1	30
Dristan	2	32
Eboost	1	80
Esgic or Esgic Plus Tablets	1	40
Excedrin Extra Strength	2	130
Excedrin Tablets or Capsules	1	65
Excedrin, Aspirin free	1	65
Femcet capsules	1	40
Fioricet	1	40
Fiorinal	1	40
Gelpirin	1	32
Medigesic capsules	1	40
Midol Menstrual Maximum Strength	1	60
Midol, for pain/diuretic	2	64
Neo-synephrine	1	15
Norgesic Forte	1	30
Pacaps	1	40
PC-CAP	1	32.4
Propoxylene HCL/Aspirin & Caffeine	1	32.4
Repan	1	40
Spot On Energy Patch, Transdermal,	per patch	20
Synalgos-DC	1	30
Triaminicin	1	30
Wigraine	1	100

Table 23 (Continued)
Caffeine Content of Weight Loss Pill-Form Supplements

Representative Products	Caffeine Source*	Caffeine per Serving**
7 Day Slimming Pill	C	
72 Hour Diet Pill	C	
7-DFBX	C	C200mg
8-FX	C	
Acai Berry Select	C, GT	C 200mg, GT225m
Acai-aSlim	GT	
Acai Noni	GT	
Accelis	GT	
Accomplix	GT, GU	GU=50% caffeine
Accuslim	GT leaf	500 mg caffeine
Adapexin	C	
Adipo-X	C, GT	
Adipozil	GT,GU,YM	
Advalean	GT, GU	GT 100 mg, GU 200mg
Advantrim	GT	
AmbiSlim PM	GT	GT decaf.
Anadrox	GT, GU	
Anadrox	GU	
Anopril-XR	GT, GU	
Anorex	GT	
Appres	GT	
Appuloss	GU, KN	
Atro-Phex	C, GT	
Avatrim	GT	
Avesil	C, GT	C 50mg, GT 150mg
Banital	GT	GT 50mg
Beelean Xtreme	GT	
CentriLEAN	GT	
Clinitrim-5	GU, YM	
CortiSlim	GT	
CreVax	GU	
CurvaTrim	GT	
Curvelle	C, GT	
CUUR	GT, YM	
Cylaris	C, GT	

*C=Caffeine, GU=Guarana, GT=Green Tea, KN=Cola Nut, YM=Yerba Mate

**Caffeine content for many products is unavailable, because declared as proprietary information by the manufacturers.

Table 23 (Continued)

Caffeine Content of Weight Loss Pill-Form Supplements

Representative Products	Caffeine Source*	Caffeine per Serving**
Cytolean	C, GT	
DecaSlim	GT	
Detoxatrim	GT	
Dexatrim Max	GT, Oolong	
Diet Fuel	GT	GT 686mg
Diet Ripped	GT	
Dren	C,	
Dymetadrine Xtreme	C, GT	
DynaSlim	GU	GU 2mg
Ephedra Hoodia Fusion	C, GU, KN	Total caffeine: 250mg
Ephedrasil Hardcore	C, GT	C 250mg
ErgoLean MC	C	C 75mg
Estrin-D	GU,GT,KN, YM	
Estro Lean	GU,GT,YM	
Everslim	C,GT	
Fedramine	C,GT, GU,KM	
Fenphedra	C	C 200mg
Fenterdren	C	C 375mg
Flash Point	C	
Get Up Slim Down	GT	
Ghreleptin	GU	
Goji Active	C, GT	
Green Tea Extreme	GT, GU	GT500mcg, GU 300mcg
H57 Hoodia	GT	GT 400mg
Herbal Phentermine	GT	GT 400mg
Hooderma	GT	
Hoodia Chaser	GT	GT 50mg
Hoodia Shot	C, GT	GT 400mg
Hoodiadrene	GT, YM	
Hot-Rox Extreme	C	
HydroBurn	GU	GU 910mg
Hydronic Razor	GT	
Hydroxycut	C, GT,	Also: Oolong and White tea
HydroxyCut 100% Premium Acai	C	
Hydroxycut Hardcore	C, GT	
Hydroxycut Max	C, GT	Also: black tea
Hyperdrive 3.0	C	

*C=Caffeine, GU=Guarana, GT=Green Tea, KN=Cola Nut, YM=Yerba Mate

**Caffeine content for many products is unavailable, because declared as proprietary information by the manufacturers.

Table 23(Continued)
Caffeine Content of Weight Loss Pill-Form Supplements

Representative Products	Caffeine Source*	Caffeine per Serving**
Irvingia Plus	GT	
Jet Fuel	C, GT, GU	
Jillian Michaels EXTREME Max. Strength Calorie Control	GU, YM	
Jillian Michaels EXTREME Max. Strength Fat Burner	GU, KN	Plus coffee and cocoa
Jillian Michaels EXTREME QUICKSTART Rapid Weight Loss	GU	Plus coffee
Lean System 7	GT, GU, YM	
Leanfire	C	C 300mg
Leptodrene	GT	
Leptopril	C	C 300mg
Leptoprin SD	GT	
Leptorexin	C	
Leptovox	GT	GT 300mg
Leviathan Reloaded	C	
Lipitrex	GU	GU 200mg equal to C40mg
Lipo 6X	C	C 200mg
Lipo-6 Hers	C	C 130mg
Lipocerin	GU, KN	
Lipodrene	C, GT	C 100mg
LipoFlush	C,G,GU,KN,YM	C 99mg
Lipofuze	GT	
Liporidex	GT	
Lipovarin	C,GT	C 200mg, GT100mg
Lipovox	C,GT	
Lipovox Hardcore Detox	GT	
Liquid Lipo	GT, Oolong	
MaxxTrim	C, GT	C 200mg, GT 50mg
Mega-T Green Tea	GT, GU	
Metabolife Ultra	C, GT, GU	GU 800mg
Metabolift	GT, GU	GU 800mg
MiracleBurn	YM	
Myoffeine	C	
Noxycut	C	C 150mg
Nuphedragen	C	C 200mg
Orovo	GT	GT 150mg
Oxotrim	GT	
PatenTrim	GT	
Phenocal	GT, YM	GT 250mg, YM 100mg

*C=Caffeine, GU=Guarana, GT=Green Tea, KN=Cola Nut, YM=Yerba Mate

**Caffeine content for many products is unavailable, because declared as proprietary information by the manufacturers.

Table23 (Continued)
Caffeine Content of Weight Loss Pill-Form Supplements

Representative Products	Caffeine Source*	Caffeine per Serving**
Phenphedrine	C	C 250mg
Phentarmine	GT, GU	
Phenterdrene	C	
Phenterfein	C	C 100mg
Phenterpril	C	C 37.5mg
Phenterprin	C	
Phentirmene	C	C 199mg
Phentremine-X	C	
Phenyl Core	C, GT+ white tea	C 200mg
Power-Berry Instant Energy	coffee	
PowerThin Phase II	C, GT, YM	
ProShape RX	GT	
QuickFire	C, GT	C50mg, GT 150mg
QuikStik	GT	
Rapidcuts femme	GT, YM	GT 92mg
Rapidslim SX	C, GT	Plus white and black tea
Razor 8	C, GT,KN	C 133mg, GT 467mg, KN 100mg
ReduSlim	GT	GT 480mg
Ripped Fuel	GT GU	GG 800mg
San Tight	C, GT	
Size 0	C, GT, YM	
Slenderite	C, GT	
Slim Seduction	GT, GU, YM	GT180mg, GU227mg, YM250mg
Slimage	C, GT	Plus white and oolong tea
SlimBody XP	C, GT, GU	
SLIMQUICK	C, GT	
SLIMQUICK Cleanse	GT	
SLIMQUICK Energy	C, GT	
SLIMQUICK Extreme	C, GT	
SLIMQUICK Hoodia	GT	GT 300mg
Slimshot	C, GT, YM	
SmartBurn	GT	
SomnaSlim	GT	
Stacker 2	C, GT, YM	C 200mg
Stimerex ES Thermo	C, GT	C 100 mg
Super Food No. 12	GT	
Suvaril	GT	

*C=Caffeine, GU=Guarana, GT=Green Tea, KN=Cola Nut, YM=Yerba Mate

**Caffeine content for many products is unavailable, because declared as proprietary information by the manufacturers.

Table 23 (Concluded)
Caffeine Content of Weight Loss Pill-Form Supplements

Representative Products	Caffeine Source*	Caffeine per Serving**
Syntrax Fyre	GT	Plus coffee bean extract
Taraxatone	C, GT	
TestoRipped	C	C 150mg
Tetrazene ES-50	C, GT	
Tetrazene Extreme	C, GT	Plus: oolong tea and coffee bean
The Burn	C	C 200mg
Thermadrol	C, GT, YM	
Thermalean RX	C, GT	
Thermo DynamX	C, GT	Plus: oolong and white tea
Thermocerin	C, GT	Plus: white tea
Thermodrenix	GT	GT 500mg
ThermoGenics Plus	C	
Thermo-Lean (manufacture by Lifesource)	C, GT	
Thermo-Lean (manufacture by Pro-Rx)	C, GT	
ThermoLean (manufacture by Shocker Nutrition)	C, GT	C 285 mg, GT500mg
Thermonex EF	C, GT, YM	C 275mg, GT 375mg, YM 200mg
Thincinerator	C, GT	C 100mg, GT 200mg
Totally Trim	GT	
Trim 20 Aqua	GT	GT 100mg
Trimspa	GT	Plus: cocoa
TriSlim	GT	
Ultimate Diet Fuel	C, GT	GT 315mg
Ventilean	C, GU	
VPX Meltdown	C, YM	
Wu Yi Wulong Tea	C	C 6.5mg
Xenadrine	C, GT, GU	
Xenadrine Rzr-X	C, GU, YM	C 200mg
Xenistat	GT	
XPEL	GT, GU	
Xylacor	GU	
Xylestril	GT	
Xyphedra	GT	
Zalestrim	GT	
Zantrex-3	C, GT, GU, YM, KN	
ZCA Stack	C	C 250mg
Zenacort	GU	
Zetacap	YM	
Zotrin	GU, YM	
Zylotrim	GT, KN	

*C=Caffeine, GU=Guarana, GT=Green Tea, KN=Cola Nut, YM=Yerba Mate

**Caffeine content for many products is unavailable, because declared as proprietary information by the manufacturers.

Table 24
Caffeine Content of Caffeine Pill Products

Representative Caffeine Pill Products	Caffeine Dosage Per one tablet or capsule
30/30 caffeine	175 mg
4Ever Caffeine Tablets	200 mg
Black Magic Stimulant Capsule	200 mg
Bolt Formula 260	Proprietary formula
Caffedrin capsules	200 mg
Caffeine Alert	200 mg
Caffeine tablet extra strength	200 mg
Caffeine tablet regular strength	100 mg
D&E 290 Pic Me Up	200mg
D&E 357 Destin Magnum	200mg
D&E Destin	175mg
D&E Stimerol 200	175 mg
Enerjets	200 mg
Ephrine Plus	200mg Caffeine + 25mg Green tea
Jet Alert Caffeine tablet	100 mg
Karein Caffeine	200 mg
Large Pink Hearts	200 mg
No-Doz extra strength	200 mg
No-Doz fast acting	100 mg
Peptime Stimulant 357	200mg
Quick Pep	200 mg
Snap Back	200 mg
Stay Alert	200 mg
Stay Awake	200 mg
Thick White Cross caffeine	110 mg
Vivarin	200 mg
White Mole Caffeine	165 mg
XTREME Peptime	200 mg
Yellow Jacked Stimulant	200 mg

Table 25 lists the range of caffeine content in foods and beverages

Table 25

Ranges of Caffeine Content in Beverages, Foods and Drugs*

Product	Serving Size	Caffeine in One serving	Caffeine in 100 ml/g
		milligram	
Coffee			
Regular drip or percolated,	8 fl. oz	95-330	40-85
Brewed or percolated, decaffeinated	8 fl. oz	3-12	1-5.0
Instant, prepared from powder	8 fl. oz	30-70	21-30
Espresso	1 fl. oz	50-150	101-256
RTD (ready-to-drink)	9.5 fl. oz	90-231	32-97
Tea			
Black, regular, brewed or tea bag	8 fl. oz	40-74	17-31
Black, decaffeinated	8 fl. oz	2-5	1-2.1
Green, brewed or tea bag	8 fl. oz	25-50	8-21
Oolong, brewed or tea bag	8 fl. oz	21-64	9-27
White tea, brewed or tea bag	8 fl. oz	15	8
Instant, prepared from powder	6 fl. oz	33-64	19-35
RTD (ready-to-drink)	16 fl. oz	9-15	2-10
Iced tea	12 fl. oz	27-42	5-9
Beverages			
Carbonated beverages with caffeine added	12 fl. oz	22-69	6-19
Alcoholic beverages with caffeine added	1 fl. oz	3-9	10-30
Energy drinks with caffeine added	8.2-23.5 fl. oz	33-400	6-570
Caffeinated waters	16.9-20 fl. oz	42-125	8-25
Dairy Products	1 cup	1-90	1-380
Foods			
Chocolates. foods and confectionaries containing chocolate	8 oz.	2-8	0-6
Sweets	Misc.	1-105	1-122
Snacks, from USDA data base	1 oz. or 1 bar	1-22	3-41
Miscellaneous snack foods, gums, and mints	Misc.	0.8-175	20-400
Fast foods	Misc.	1-77	1-49
Baked products	1 oz or 1 portion	1-28	1-46
Drugs			
Miscellaneous Dugs	1 or 2 tablet or capsule	15-200	NA

*Some extremely large values for insignificant products are excluded.

2. Caffeine Intake by the U.S. Population

Estimates of the caffeine intake of the U.S. population are based on the following two sources:

1.USDA NHANES 2-day food consumption surveys (38),

2.The NPD Group's Food Consumption surveys (34) compiled from food diaries of an annual panel of 2,000 households, which yields about 5,000 individuals each year for two years.. Households are selected from across the nation and matched to U.S. Census statistics to ensure that the sample is representative of the U.S. population.

Data from these sources were validated and, if considered necessary, were updated from market information provided by The National Coffee Association (33), The Tea Association of the USA (36), and the American Beverage Association (27). U.S. Trade Statistics (23) are also included in our estimates because all principal sources of caffeine coffee, tea, and cocoa are imported to the United States.

Caffeine Intake of the U.S. Population, Based on the NHANES Surveys

The U.S. Department of Health and Human Services and the USDA jointly conduct What We Eat in America (WWEIA), and NHANES, a national food survey (38). The National Center for Health Statistics conducts the ongoing NHANES nationwide surveys, with data released in 2-year increments: 1999-2000, 2001-2002, 2003-2004, and 2005-2006. The respondents interviewed by NHANES—all of whom are in the U.S. civilian population—are selected using a complex sampling method. In the 2-year increment, approximately 10,000 individuals were interviewed. For WWEIA, respondents recall their food consumption over 24 hours (see http://www.ars.usda.gov/ba/bhnrc?fsrg for more detailed information).

The data for 2005-2006, the most data release, represent 24-hour recall for 2 nonconsecutive days for about 9,500 respondents. The survey includes respondents' caffeine intake. However, note that the survey is not specific for caffeine intake; caffeine is only one of the 63 food components included in the analysis. Moreover, information on the sources of caffeine is not provided; instead, the NHANES reports indicate statistics only for total daily caffeine consumption.

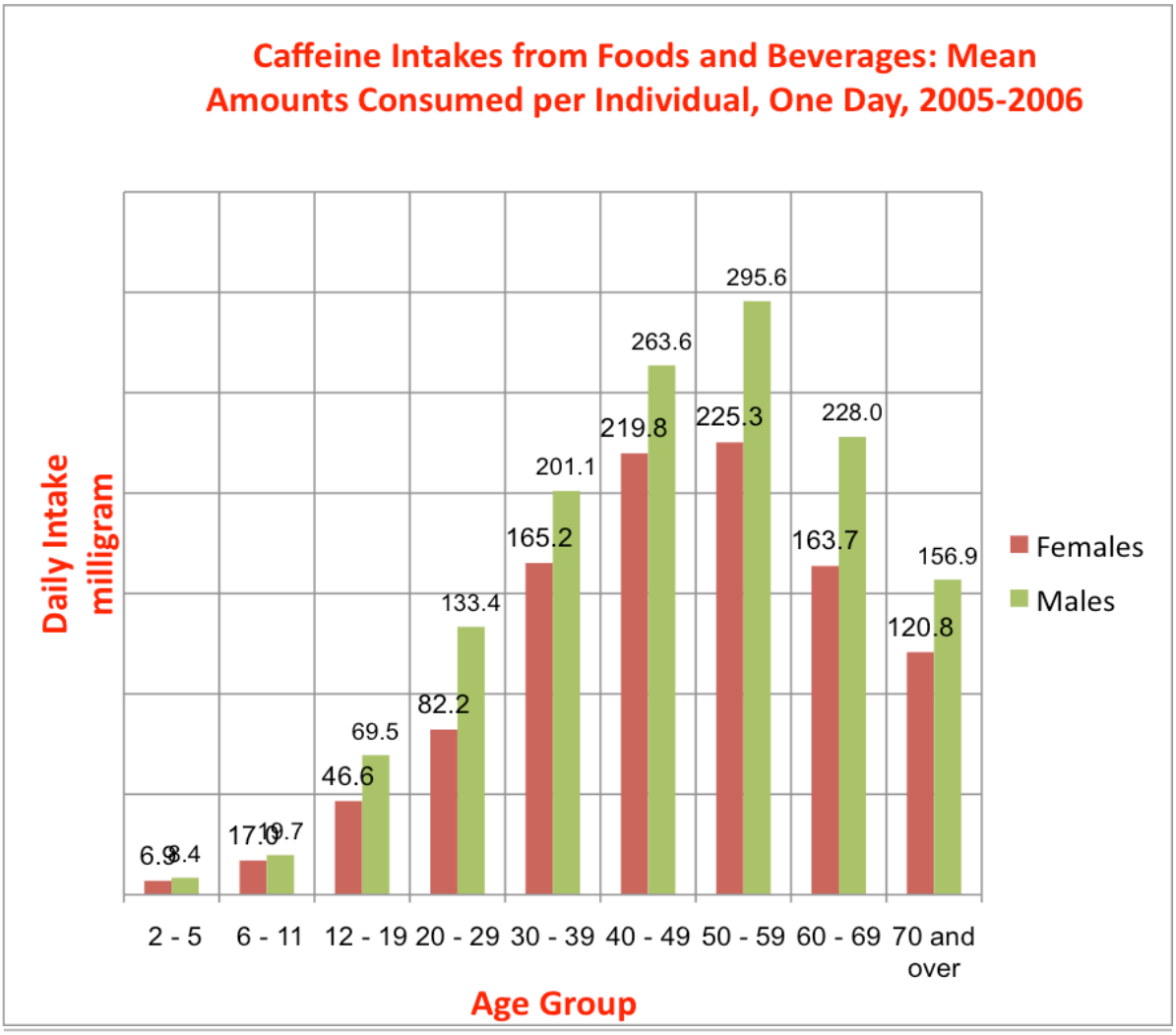
Table 26 presents results for per capita (includes eaters and non-eaters) caffeine intake for the last three 2-year periods; Figure 1 illustrates per capita mean daily caffeine intakes by age and gender groups for 2005-2006.

Table 26

Caffeine Intakes from Food and Beverage: Mean Amounts Consumption Per Capita in One Day

Gender and Age/ Years	2001-2002		2003-2004		2005-2006	
	Caffeine Intake milligram	Standard Errors of the Mean	Caffeine Intake milligram	Standard Errors of the Mean	Caffeine Intake milligram	Standard Errors of the Mean
Males						
2–5	15.2	3.72	14.9	3.61	8.4	3.61
6–11	26.1	2.38	35.4	4.18	19.7	4.18
12–19	74.3	6.45	63.1	4.86	69.5	4.86
20–29	151.9	18.15	135.6	12.20	133.4	12.20
30–39	215.0	18.31	236.9	18.35	201.1	18.35
40–49	240.1	18.05	294.1	29.14	263.6	29.14
50–59	243.0	18.23	273.0	24.01	295.6	24.01
60–69	203.8	29.30	238.5	16.30	228.0	16.30
70 and over	160.1	12.79	171.5	12.12	156.9	12.12
20 and over	207.7	9.68	227.0	13.12	216.1	13.12
Females						
2–5	12.3	2.29	*13.2	4.66	6.9	4.66
6–11	23.0	2.81	26.9	2.99	17.0	2.99
12–19	49.1	2.78	55.1	4.68	46.6	4.68
20–29	91.4	11.24	103.3	9.96	82.2	9.96
30–39	168.9	12.02	162.1	11.86	165.2	11.86
40–49	190.0	13.47	190.4	17.16	219.8	17.16
50–59	190.6	17.00	174.2	11.95	225.3	11.95
60–69	153.0	14.08	163.3	9.04	163.7	9.04
70 and over	118.5	5.44	133.3	12.68	120.8	12.68
20 and over	153.4	8.07	155.1	6.86	165.3	6.86
Males and Females Ages 2 and over	**142.1**	**5.96**	**150.8**	**7.19**	**149.8**	**7.19**

Figure 1



Source: USDA, Agricultural Research Service, NHANES 2005-2006 survey.

Per capita caffeine consumption (includes eaters and non-eaters) between 2001 and 2006 for all consumers older than 2 ranged from 142.1 to 149.8 mg/day, indicating only very small variation over the period.

Females and males between 2 and 19 consumed much less caffeine than adults did, given youth's preference for cola beverages, which contain much less caffeine than coffee. In 2006, per-capita mean daily caffeine intake by young children 2 to 5 and 6 to 11 years from all caffeine containing sources was 8.4 and 19.7 mg/day for boys and 6.9 to 17.0 mg/day for girls.

In each 2-year survey period, female adults consumed less caffeine than males. Moreover, females of childbearing ages between 20 and 49 consumed less caffeine than males in the same age group. However, the latest 2005-2006 survey showed that per-capita caffeine intake of females in the 30-39 year age range was double that of the 20-29 age female groups—165.2 mg/day vs. 82.2 mg/day intake—and increased even further to 219.8 mg/day for females 40-49 years old. (Note that the survey does not provide a specific breakdown for

women 40 to 45 who are still of childbearing age. Nor does the NHANES survey provide information about the sources of caffeine consumption; therefore, it is unknown whether the increase was due to coffee, tea, or soft drink consumption.)

Each 2-year survey indicated that males 40-59 years old consumed the highest daily doses of caffeine, followed by a substantial decrease for males in older age groups.

The highest per-capita caffeine intake in 2005-2006 was 295.6 mg/day for the 50-59 age groups.

These results are similar to those in a report by Knight et al. dated 2004 (25). In that report, intake of major beverage sources (coffee, tea, and carbonated soft drinks containing caffeine) was measured for 10,712 consumers in the 1999 U.S. Share of Intake Panel, a targeted beverage survey; the survey did not include energy drinks, chocolate, or other food sources of caffeine. In the study, daily caffeine intake of all consumers (all ages) from caffeinated beverages was 120 mg/day (mean) with 287 mg/day at the 90^{th} percentile, ranging from 106 to 170 mg/day (mean) and 227-382 mg/day at 90^{th} percentile. The mean caffeine intakes for children 1-5 and 6-9 years were 14 and 22 mg/day, respectively; at the 90^{th} percentile intakes were 37 and 45 mg/day, respectively. Women of reproductive age (20-34 years) ingested 91 to109 mg/day (mean) caffeine and 229 to 247 mg/day at 90^{th} percentile.

Caffeine Intake of the U.S. Population, Based on the NPD Group Survey

The NPD Group's Nutrition Service surveyed respondents' food and beverage consumption, recorded in daily diaries. The sample surveyed consisted of the National Eating Trend's (NET's) annual panel of 2,000 households, which represented about 5,000 individuals each year. Households were selected from across the nation and matched with U.S. Census statistics to ensure that the sample was representative of the U.S. population. Food and beverage consumption was recorded and returned daily for each household member for 14 consecutive days. Each meal and snack, both at home and away from home, was recorded. To ensure all days were given equal weight and seasonal behavior was captured, approximately 2,000 households representing approximately 5,000 individuals for each year began new 2-week reporting periods sequentially throughout the year.

NPD's Nutrient Intake Database estimates an individual's daily intake of calories, protein, fats, carbohydrates, vitamins, minerals, and caffeine. The database calculates nutrient intake data by integrating eating frequency from NET, with average serving sizes from WWEIA (the dietary intake interview component of NHANES), and nutrient values from the USDA's National Nutrient Database for Standard Reference.

In brief, the NPD data provide food intake for 14 days for each sampling conducted throughout the year. The NPD data indicate the specific source and quantity that participants consume daily and break down overall consumption data by age and gender segments. In contrast, NHANES surveys gathered dietary recall data for 1 day and are conducted one time each year, and they did not segregate intake information for females of childbearing age.

Table 27 shows daily consumption quantities of caffeine-containing foods and beverages extracted from the NPD Group's 2-year consumption survey issued in February 2008. Our caffeine intake estimates that follow are based on these food and beverage consumption data. For example, the data show that all person older than 2 typically consumed 145.8 g/day of coffee, 126.5 g/day of tea, and 204.0 g/day of caffeine-containing carbonated soft drinks.

Table 27
Mean Daily Consumption of Caffeine Containing Food and Beverage Products Identified as Caffeine Sources

Food or Beverage Source*	Mean Single Day Food and Beverage Consumption per Person, in Grams					
	Total 2+ Year Old	Children 2-13 years	Males 14-21 years	Females 14-21 years	Adults over 22 years	Females 16-45 yr.
Beverages						
Coffee	145.8	2.5	22.5	33.9	195.3	110.9
Coffee from Ground Regular IN	81.4	0.8	15.8	23.6	108.8	65.7
Coffee AF Regular	18.6	0.6	1.4	3.1	25.1	13.1
Coffee Made From Ground Reg, Flavor IN	9.2	0.2	1	2.3	12.3	9.1
Coffee Instant Regular IN	9.5	0.1	1.2	1.3	12.8	6.5
Coffee Espresso IN	0.1	0	0	0	0.2	0.1
Coffee made from Ground Decaf	22.1	0.4	2.7	3.2	29.7	11.6
Coffee Latte IN	0.3	0	0	0	0.4	1.0
Coffee Instant Flavored IN	0.9	0.2	0.3	0.1	1.1	0.9
Coffee Mocha IN	0.4	0	0	0	0.6	0.5
Cappuccino IN	0.7	0.3	0	0.1	0.9	1.3
Tea	126.5	38.4	145.1	88.1	153.1	126.2
Iced Tea - In Home	66.6	27.5	86.6	55.7	75.7	64.0
Hot Tea - In Home	33.1	6.2	17.9	12.7	41.9	34.3
Tea (excluding Instant) with sugar IN	64.0	20.3	68.1	44.0	75.7	66.9
Tea (excluding Instant) artificial swt. IN	25.8	9.1	23.6	16.1	30.6	24.3
Tea AF	21.3	5.9	19.2	13.3	25.8	21.0
Tea Powdered/Instant with sugar IN	5.0	1.8	8.7	6.0	5.5	4.0
Tea Powdered/Instant artificial swt. IN	4.3	2.5	4.1	2.2	4.9	2.0
Carbonated Soft Drink (CSD)	204.0	94.4	252.2	202.9	228.4	237.1
CSD: Cola	117.7	42.7	118.4	108.2	136.9	132.8
Cola Regular	67.6	32.8	96.9	75.9	74.0	76.6
Cola Sugar Free	50.1	9.9	21.5	32.3	62.9	56.2
CSD: All Other Flavored (non-cola)	85.7	51.8	134.2	94.9	90.8	103.7
All Other Flavor Regular	66.2	47.3	124.6	83.2	66.4	79.7
All Other Flavor Diet	19.5	4.5	9.6	11.7	24.4	24.0
CSD: Fruit Flavored	33.8	18.4	66.7	39.8	35.3	42.5
CSD: Lemon/Lime/Ginger Ale	31.7	19.8	37.8	37.4	33.9	36.1
CSD: All Other Flavor	6.1	3.3	6.1	6.1	6.8	8.0
CSD: Not Reported Flavor	5.4	4.7	10.3	5.8	5.3	6.5
CSD: Cream Soda	1.2	0.4	0.5	0.4	1.5	1.7
Other Beverages	164.8	229.2	219.4	172.4	145.0	130.8
Milk/Chocolate Milk	124.2	225.7	210	167.6	91.1	103.0
Alcoholic Beverages	37.0	0.1	6.3	0.9	50.1	23.1
Energy Drinks	0.2	0.1	0.3	0.2	0.3	0.4
Hot Chocolate/Cocoa	3.4	3.3	2.8	3.7	3.5	4.3
Foods	43.9	39.3	56.7	38.4	44.6	38.3
Candy/Gum	3.0	2.1	2.7	2.1	3.2	3.3
Cookies (Ex Rte Treat Bars)	5.2	5.6	7.3	5.3	5.0	4.2
Cakes	9.1	6.9	13.2	8.4	9.5	8.2
Frozen Ice Cream/Novelties	22.3	20.6	28.5	20.1	22.5	19.8
Pudding/Custard/Tapioca	4.3	4.1	5.0	2.5	4.4	2.8

*IN=In-home; AF=Away-from-home. Source: The NPD Group Nutrient Database, February, 2008. Sample size: 9432 Individuals.

The NPD Group's caffeine intake estimates were less than one-half those of other surveys. In analyzing the NPD data, we found that the calculated caffeine contents for several products were much lower that generally accepted for caffeine-containing beverages. Therefore, we used the NPD data for the quantity of caffeine-containing foods and beverages consumed, but substituted NPD's caffeine content figures from data we collected as part of this study from technical publications, the Internet, trade associations, and industry sources.

Tables 28 and 29 summarize the adjusted daily caffeine intake estimates; Figure 2 illustrates the same data. The data show daily caffeine intake estimates by age and gender groups based on the NPD survey. The Appendix sets forth a complete account of the original NPD report.

Table 28
Mean Daily Caffeine Intake by Various Gender and Age Segments of the U.S. Population, Based on NPD's Previous-Day Menu Recollection

	People	Children	Males	Females	Adults	Females
Age Group	**Age 2 +**	**2-13**	**14-21**	**14-21**	**22 +**	**16-45**
Number of Individuals	9,432	1,722	423	384	6903	2027
Caffeine Intake mg/day	**131.9**	**28.7**	**74.9**	**62.0**	**161.9**	**115.6**
Total from Beverages mg/day	129.6	26.5	71.8	59.8	159.6	113.6
Coffee	67.2	1.1	11.1	15.6	90.3	54.2
Tea	23.2	7.5	23.4	15.5	27.3	23.0
Carbonated Beverages	25.7	10.9	29.1	23.3	26.0	27.0
Other Beverages	13.5	7.0	8.2	5.4	16.0	9.4
Total from Food mg/day	2.3	2.2	3.1	2.2	2.3	2.0

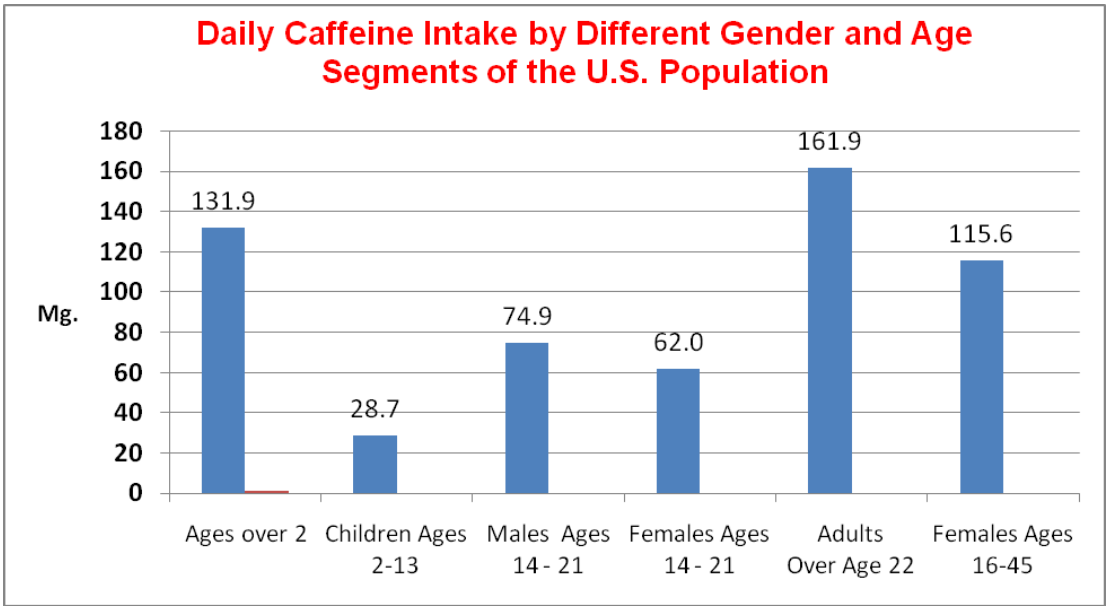
Source: NPD Group's Nutrient Intake Database, February 2008, with the caffeine content of food and beverage data adjusted by the author.

Table 29
Percent Daily Caffeine Intake by U.S. Population Segments from Food and Beverages Sources, Based on NPD's Previous-Day Menu Recollection

	People	Children	Males	Females	Adults	Females
Age Group	**Age 2 +**	**2-13**	**14-21**	**14-21**	**22 +**	**16-45**
Caffeine Intake mg/day	131.9	28.7	74.9	62.0	161.9	115.6
From Beverages	98.3%	92.3%	95.9%	96.5%	98.6%	98.3%
Coffee	50.9%	3.8%	14.8%	25.2%	55.8%	46.9%
Tea	17.6%	26.1%	31.2%	25.0%	16.9%	19.9%
Carbonated Beverages	19.5%	38.0%	38.9%	37.6%	16.1%	23.4%
Other Beverages	10.2%	24.4%	10.9%	8.7%	9.9%	8.1%
From Food	1.7%	7.7%	4.1%	3.5%	1.4%	1.7%

Source: NPD Group's Nutrient Intake Database, February 2008 (re. 34), with the caffeine content of food and beverage data adjusted by the author.

Figure 2



Source: NPD Group's Nutrient Intake Database, February 2008, with caffeine content of food and beverage data adjusted by the author.
Total Sample: 9,432 Individuals, 2 years of age and older.

For all age groups, solid foods are negligible sources of caffeine; caffeine intake from solid foods represents 3.3 to 7.7% for young people between 2 and 21, and less than 2% for male and female adults. For all age and gender groups coffee, tea, and carbonated beverages are the major sources of caffeine. Caffeine intake increases dramatically with age. Children aged 2-13 per capita consume 28.7 mg/day of caffeine; per capita consumption increases to 47.9 to 60.0 mg/day among 14 to 21 year olds. Per capita daily caffeine consumption of adults older than 22 is 161.9 mg/day, with women of childbearing age consuming much less caffeine at 115.6 mg/day. Coffee is the largest source of caffeine among adults, followed by tea; more than 50% of the daily caffeine intake of adults is from coffee beverages. Soft drinks and tea are major caffeine sources for children 2 to 13; for that age group, as well as for the 14-21 groups, carbonated beverages (mostly cola) provide the largest source of caffeine. Moreover, younger age groups consume more tea per capita than coffee.

Coffee Consumption Estimates by the National Coffee Association of U.S.A. (NCA)

According to the NPD survey, coffee beverages are the most important sources of caffeine, accounting for more than 50% of caffeine intake for the adult U.S. population. Therefore, thorough knowledge pertaining to coffee consumption and trends is essential. Comprehensive information regarding coffee consumption is available from NCA. Since 1950, NCA has commissioned annual surveys on the coffee drinking quantities consumed and consumption trends among American consumers. In contrast to the NPD survey, which collects information on a broad number of food components, the NCA annual survey focuses

only on coffee consumption. Therefore, it is a more thorough and reliable source for coffee consumption.

The July 2009 NCA report (33), which is quoted here, incorporates a random telephone dialing survey of 2,956 males and females, 18 years of age or older. The report includes consumption figures for all common coffee types such as regular, instant, decaffeinated, and gourmet coffee beverages (e.g., cappuccino, espresso, latte, café mocha, iced coffee). Data collection was conducted during January and February 2009. The samples are representative of the population of the continental U.S, (225,849,000 age 18 years or older) of whom 54% drank coffee on the previous day of the survey. The results indicate that previous-day coffee consumption has been relatively stable since the late 1980s; the all-time peak of 57% occurred in 2007.

While daily coffee consumption among Americans held steady, the data for past week and past year coffee consumption was down from 2008, indicating that a small number of less frequent coffee drinkers may have moved away from coffee consumption. Among the surveyed Americans 63% drank coffee in the previous week and 77% drank coffee during the past year. During recent years, past week consumption declined slightly from the all-time high of 68% in 2006. Consistent with data for coffee drinkers in the past week, yearly consumption of the surveyed population decreased from the high of 82% in 2006 to 77% in 2009.

According to the NCA report overall 22% of the adult population does not ever drink coffee. Non drinkers tend to be younger, live in the South region, and more likely to drink soda and milk.

About 10% of the adult coffee drinker population drank decaffeinated coffee on the previous day, indicating that decaffeinated coffee consumption did not change since 2005. Among coffee drinkers, 11% drank decaffeinated coffee during the previous week in 2009, with past year's consumption was significantly higher at 29%.

In 2009, previous day coffee drinkers (equal to 54% of 18 years and older population) consumed an average of 3.3 cups per day (equivalent to 26.4 fl. oz. or 780.7 ml). Consistent with the overall consumption trend, daily consumption quantities remained essentially unchanged since 2003, when the coffee drinker population segment drank 3.0 cups of coffee each day. This finding indicates that those drinking coffee are not reducing the number of cups they consume each day.

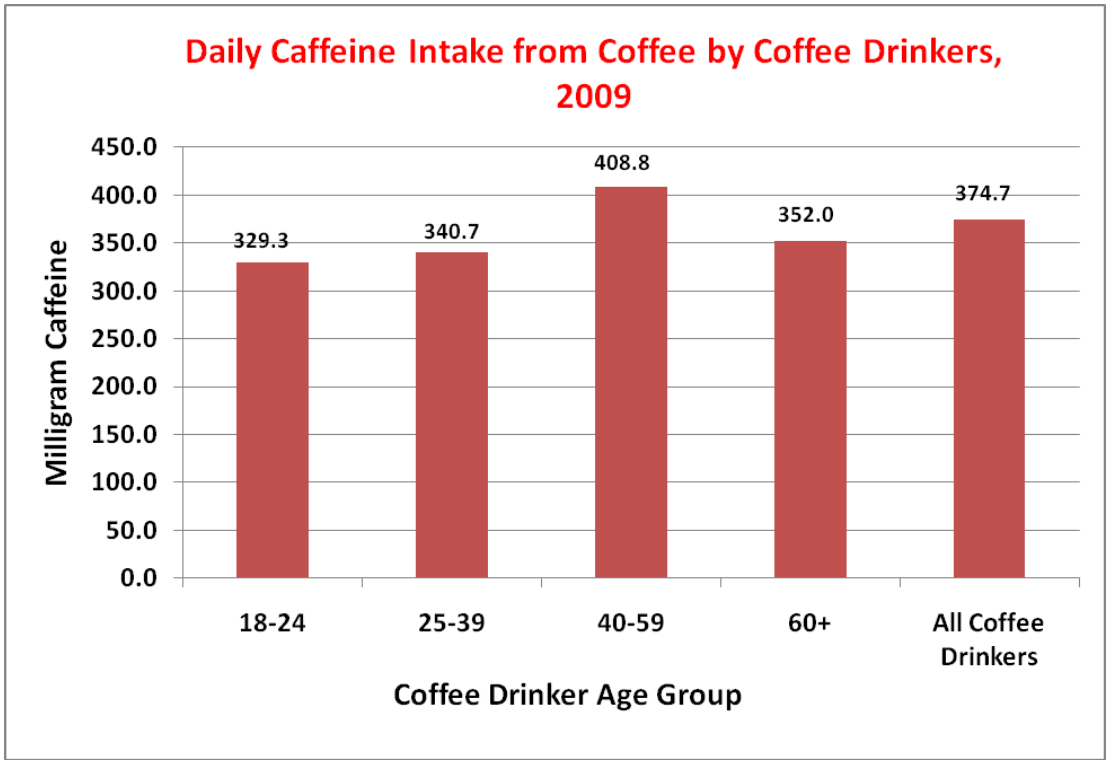
Table 30 and Figure 3 show daily coffee consumption of various coffee drinker age groups and their daily caffeine intake. According to NCA data, the daily intake of each coffee drinking group exceeds 300 mg of caffeine. Each annual NCA survey since 1974 has found daily consumption by regular coffee drinkers to be 3 to 3.6 cup of coffee, and the author views those figures as reasonable estimates. Heavy coffee drinkers can be assumed to seldom drink tea and to consume fewer carbonated soft drink products, with most of their daily caffeine source therefore coming from coffee drinks.

Table 30
Daily Coffee Consumption and Caffeine Intake
by Regular Coffee Drinkers; NCA Survey, winter, 2009

Age Group	Daily Coffee Consumption		Daily Caffeine Intake
	8-Fl. Oz. Cups	Volume milliliters	Milligrams*
18-24	2.9	686.1	329.3
25-39	3.0	709.8	340.7
40-59	3.6	851.7	408.8
60 +	3.1	733.4	352.0
All Drinkers	3.3	780.7	374.7

Source: National Coffee Association, New York, NY 2009.
*The author calculated caffeine intake figures as 48 mg of caffeine in 100 g of coffee.

Figure 3



Source: National Coffee Drinking Trends, 2009, National Coffee Association of U.S.A. New York, NY (ref. 33).

The NHANES survey provides a summation of caffeine intake from all dietary sources; it does not reveal specific information about the source of caffeine consumption. The survey indicates daily consumption of 149.8 mg from all caffeine sources for the 2 year old and older U.S. population. Although the NPD report includes specific coffee consumption estimates for the entire U.S. population older than 2 years, the NCA study addresses only the segment of the population older than 18. Because the 2 to 18 age group consumes only very small amounts of coffee, a reasonable comparison may be made between the NPD and NCA data. When we have extended our estimate based on the NCA coffee consumption data to the entire U.S. population (e.g., including coffee drinkers and nondrinkers over 18) per capita coffee consumption was 1.76 cups/day per person (equivalent to 14 fl. oz. per day or 416 ml/day). Per capita consumption by males and females was almost equal, at 1.78 daily cups and 1.73 daily cups, respectively.

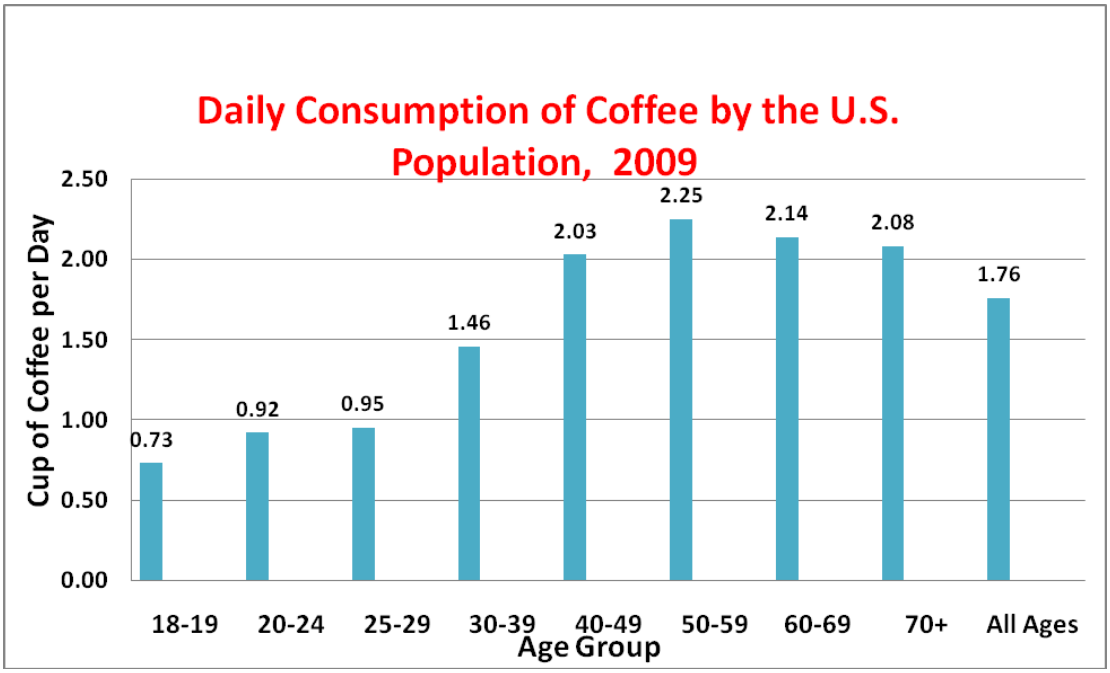
Table 31 and Figure 4 summarize per capita daily coffee consumption and caffeine intake including all members of various age groups; the data were derived from the NCA report extended to the entire U.S. Population.

Table 31
Daily Per-Capita Coffee Consumption and Caffeine Intake of Various Age Groups from the NCA's 2009 Survey

Age Group	Daily Coffee Consumption		Daily Caffeine Intake
	8-Fl. Oz. Cups	Volume milliliters	Milligrams
18-19	0.73	172.7	82.9
20-24	0.92	217.7	104.5
25-29	0.95	224.8	107.9
30-39	1.46	345.4	165.8
40-49	2.03	480.3	230.5
50-59	2.25	532.3	255.5
60-69	2.14	506.3	243.0
70+	2.08	492.1	236.2
Population over age 18*	1.76	416.4	200.0

Source: National Coffee Drinking Trends, 2009. National Coffee Association of U.S.A.,
*Data reported are for correspondents 18 years of age or older. Until 1999, the survey included the 10-14 and 15-19 age groups. In 1999, the 10-14 age group consumed 0.15 cup (1.2 fl. oz.) of coffee per day and the 15-19 age group consumed 0.59 cup per day (4.72 fl. oz.).

Figure 4



Source: National Coffee Drinking Trends, 2009. National Coffee Association of U.S.A., New York, NY (33)

Trade Information

Essentially, all dietary caffeine available in the United States is imported, primarily in the form of coffee, but also as tea, cocoa, and purified caffeine itself. Thus, reviewing recent trade data (51) provide another perspective on caffeine consumption. Recent apparent consumption (i.e., imports, minus exports) data can provide useful information on the extent of coffee consumption and help validate the estimates that the NPD and NCA surveys provide.

Coffee

Apparent U.S. consumption of coffee was nearly constant during the past 3 years. Using the past 3 years' trade data and the following method, we estimated per capita caffeine intake at 184.5 mg/day for the population 2 years and older:

In 2006, 2007, and 2008, apparent consumption was 1,119,437, 1,169,634 and 1,174,992 metric tons (MT) of coffee beans, respectively.

Thus, the annual apparent consumption during the past 3 years was 1,154,688 MT of coffee beans.

- The caffeine content of roasted coffee beans ranges between 0.8 and 2.5%.
- Using the median 1.65% caffeine content for coffee beans, the annual caffeine intake of the entire U.S. population was 19,052 MT.
- Per capita daily caffeine intake of the population older than two years (283 million in 2008) was 184.5 mg.

- Caffeine intake of regular daily coffee drinkers representing 54% of the population (33) was therefore 341.7mg. Assuming proximately 5-10% waste and other losses regular coffee drinkers' daily caffeine consumption is between 313mg to 325 mg caffeine from coffee drinking.

The low caffeine consumption of 67.2 mg/day for adults indicated in the NPD survey is debatable. The close agreement in caffeine intake estimates derived from the U.S. trade data and the NCA survey supports this assumption. The NCA coffee intake survey indicates that the U.S. population older than 18 has a daily caffeine intake of 200.0 mg/day. From U.S. trade data, we arrive at a caffeine intake for the U.S. population older than 2 of 184.5 mg/day. We believe that these relatively consistent figures are reliable estimates. Therefore, in the Conclusions Section of this report we present the 200 mg/day per person as the U.S. average caffeine intake from coffee.

Tea

Trade information indicates that the U.S. population' caffeine intake from tea averages 24.3 mg/day. This figure is based on the following assessment:

According to the Tea Association of the USA all tea is imported, with essentially no U.S. tea export.

- In 2006, 2007, and 2008, tea imports were 116,750, 101,281, and 101,620 MT of black and green teas, respectively. Thus, mean import volume during the past 3 years was 106,550 MT of tea.
- For all the 310 million American consumers (40) this quantity of tea provided 55 billion 8-fl. oz. cup servings, equivalent to 177.4 cups/year per person, or 0.486 cup/day per person.
- An average cup of tea contains 50 mg of caffeine; therefore, caffeine intake for the U.S. population is 24.3 mg/day per person.

For entire U.S. adult population the NPD survey projected 23.2 mg/day per person of caffeine intake from tea, which is nearly identical to the 24.3 mg intake, calculated from the trade data.

According to the Tea Association of USA annual report (36) on any given day about one-half of the American population drinks tea. Therefore daily caffeine intake of regular tea drinkers is about 58m/day, equal to about 1 cup of tea daily.

About 82% of all tea consumed in America is black tea, 17% is green tea, and a small portion of the remaining amount is Oolong and white tea. Approximately 85% of tea consumed in America is iced.

Carbonated Soft Drinks (CSDs)

The 2008 Beverage Marketing Corporation report estimates 40 mg/day of caffeine consumption per person from caffeine-containing CSDs as follows:

- In 2008, 9,361 million gal of caffeine-containing CSDs were sold in the United States, equivalent to 990,851 million 12 fl. oz. servings.
- The U.S. population older than 2 of 283 million consumed 353 servings/yr of caffeine-containing CSD, equivalent to about 1–12 fl. oz. servings of caffeine-containing CSD each day.
- Regular cola drinks on average contain 40 mg of caffeine per 12 fl. oz. serving.

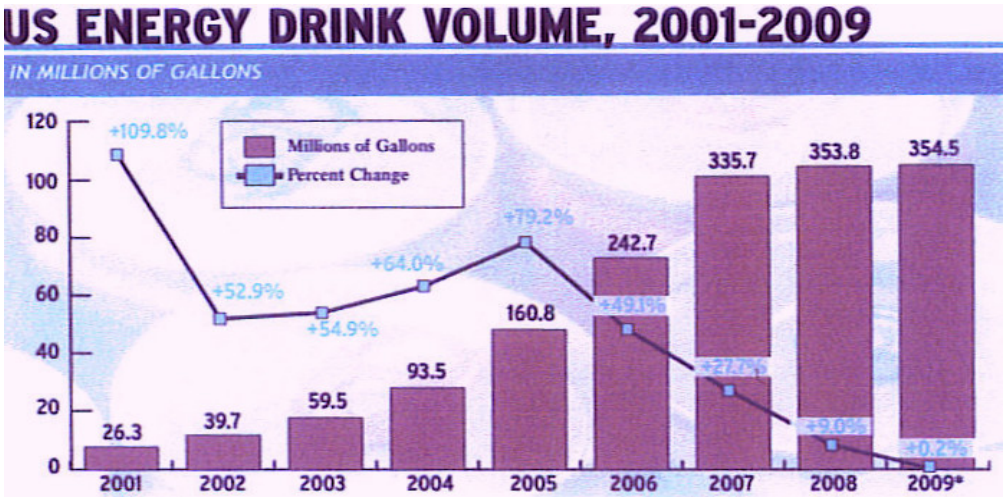
The 40 mg/day daily caffeine intake is higher than the 25.7 mg/day projected in the NPD survey for the U.S. population over 2 years of age. However, this difference has only miniscule consequences for total daily caffeine intake.

Caffeine-containing soft drinks represent about one-third (by volume) of the total U.S. liquid refreshment markets. The caffeine-containing CSD segment is dominated by three major brands: Coca Cola, PepsiCo, and Dr Pepper, which have 47.0%, 39.6%, and 13.4% market shares, respectively. The CSD market has been struggling for several years. In 2008, the market decline accelerated by 3.1% in volume over the previous year.

Energy Drinks

According to the Beverage Marketing Corporation report (27) approximately 354 million gallons of energy drinks were sold in the United States in 2008 and in 2009, representing only 1.2% (by volume) of the total CSD market. Between 2001 and 2006, market growth of these products exceeded 50% annually, but growth declined to 9% in 2008 and to 0.2% in 2009 (Figure 5).

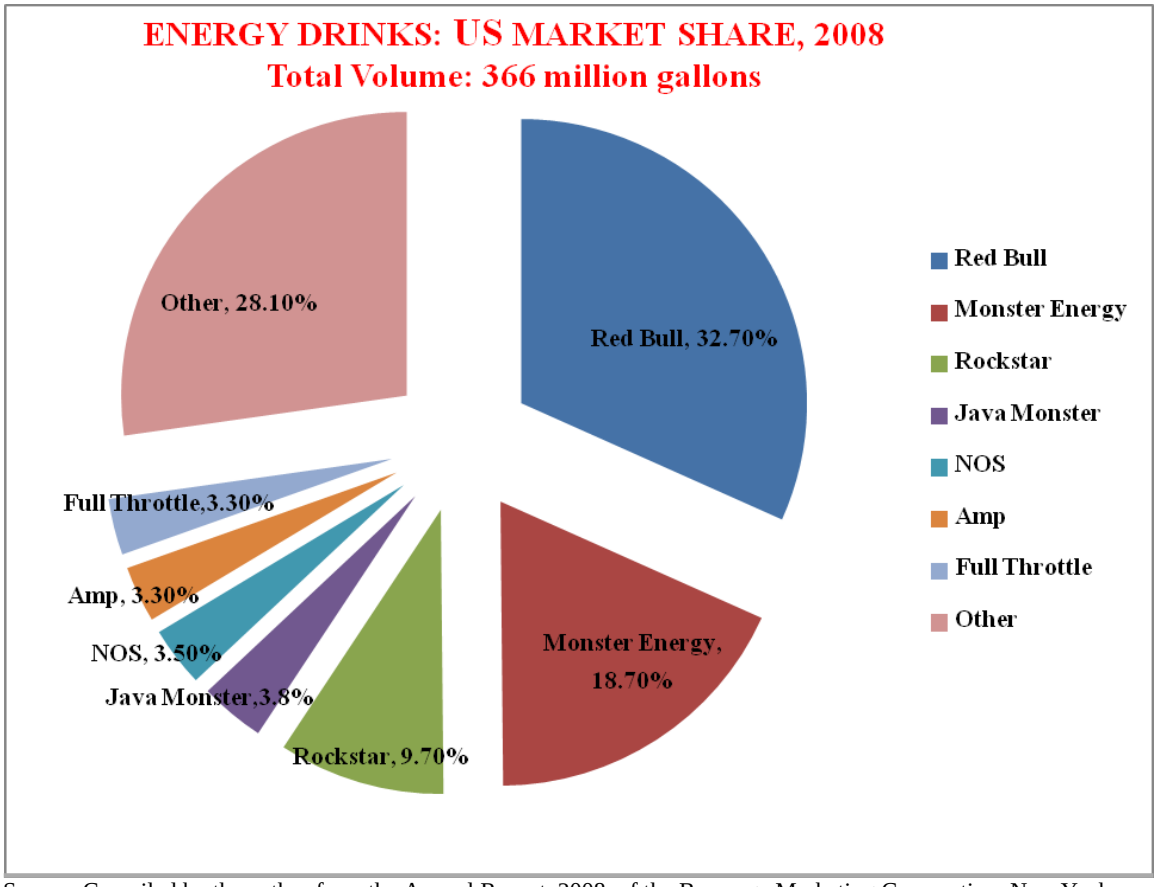
Figure 5



Source: State of the Industry 2010 in Beverage World: April 2010, page S14.

Even with this small market share, this product category requires attention because some of the products contain massive doses of caffeine (over 200 mg/serving), plus other stimulants, and because most are sold in larger single-serving units than are cola drinks (16 vs. 12 fl. oz.). As shown in Figure 6, of the more than 150 products marketed, 7 major brands dominate the market with a 72% market share (by sales volume).

Figure 6



Source: Compiled by the author from the Annual Report, 2008, of the Beverage Marketing Corporation, New York.

Major brands are sold in the regular retail channels, with the remaining 28% brands marketed through direct sales organizations, exercise clubs, and the Internet. Amazon is one of the leading on-line sellers of a broad variety of caffeinated energy drinks. Energy drinks usually contain substantially more caffeine per serving than do conventional cola drinks. Of the leading brands, Red Bull contains 80 mg of caffeine per serving; Monster Energy, Rockstar, and Java Monster, 160 mg; and NOS, 260 mg (Most caffeinated CSD beverages contain 40 mg caffeine per serving). Table 16 (pp. 30-33) lists the caffeine content of energy drinks.

The Beverage Marketing Corporation report indicates that in 2008 the mean per capita daily caffeine intake from energy drinks of the population older than 10 was 7.2 mg:

- In 2008, 366 million gallons (1,385.3 million liters) of energy drinks were sold in the United States, equivalent to 2,891 million 16 fl. oz. or 480 ml) servings
- The U.S. population older than 10 (264 million) consumed 5.25 L/yr, equivalent to 14.4 ml/day per person—or a 0.03 16 fl. oz serving per day.
- Energy drinks on average contain 50 mg of caffeine per 100 ml of beverage, equal to 7.2 mg of caffeine content in the 14.4 ml/day energy drink per-capita consumption.

However, energy drink consumption is limited to a small segment of the population but only very limited reliable information is available of the number and age distribution of regular energy drink consumers. Energy drinks are typically attractive to young people. Approximately 65% percent of its drinkers are between the ages of 13 and 35 years old, with males being approximately 65% of the market (41). A 2008 statewide survey conducted by the Pennsylvania Medical Society's Institute for Good Medicine found that: 20 percent of respondents' ages 21–30 had used energy drinks in high school or college to stay awake longer to study or write a paper (41). A survey by the NDP Group taken annually for a two-week period for 9 years ending February 2010 is showing that 0.9% of the 14-21 year old individuals are regular energy drinkers (Table 32). However, the leader of the NDP study warned that may be there is under reporting for young person because the diary was filled out by primary meal preparer for each individual and for teens one can assume they would be purchasing for themselves and possibly not informing parents all the time.

Table 32
Percent of Individuals that Consume Energy Drinks in a Two Week Period

Individuals	Number of Individuals Participated	Number of Individuals Consuming Energy Drinks	Individual Penetration in 2-week period Percent
Total Individuals	44,634	220	0.5
2-13 Year Old	7,979	9	0.1
14-21 Year Old	3,824	36	0.9
Female 16-45 year old	9,244	67	0.7

Source: The NDP Group, data for 9 years ending February 2010, Personal Communication

Assuming that 2% of the population older than 10 are regular consumers of energy drinks, they consume about 1.55 - 16 fluid oz. servings per day. Most 16 fl. oz energy drink serving contains between 150 to 300 mg of caffeine, therefore we estimate that caffeine intake of some regular energy drink consumer may be as high as 465 mg/day.

In November 2009 The Food and Drug Administration notified manufacturers of caffeinated alcoholic beverages that they would have 30 days to prove "clear evidence of safety," or this product line would have to be taken off the market. At the time of preparation of this report it is unknown how many caffeinated alcoholic beverage products are still sold. However, the leading brands of this category Miller/Coors' Sparks and Anhaeuser Busch's Tilt that previously contained caffeine and guarana removed all caffeinated ingredients from their product.

Caffeine

Imports of food-grade caffeine decreased in 2008 to 5,538 MT from the high of 7,000 MT in 2007. The chemical is added mainly to cola beverages, energy drinks, drugs and dietary supplements. Therefore, the contribution of imported caffeine to dietary intake is included in the consumption data for those products. The decline in the U.S. caffeine imports in recent years is connected to decreasing sales volumes of cola beverages.

Cocoa

U.S. imports of cocoa and cocoa-containing ingredients increased in recent years. Cocoa is imported in several forms and grades (e.g., powder, paste, defatted, with added sweetener, in blocks of chocolate). Therefore, it is impossible to calculate the overall caffeine content of cocoa imports. However, as discussed above, cocoa-containing foods and beverages have only insignificant contribution to the total daily caffeine intake of the population.

3. Conclusions

The caffeine intake of the U.S. population by gender and age groups is estimated in Tables 29 and 30 and illustrated in Figure 7. Consumption figures for the overall population have been assembled from trade statistics and market information. In general the total daily caffeine intake figures are in agreement with the NHANES survey estimates shown above in Figure 1. Caffeine intake estimates for subgroups are based on the NPD daily food diary survey. The subgroups were selected according to the FDA guidelines.

More than 97% of the caffeine intake of teenagers and adults and 94.9% intake of the 2-13 year old children group come from beverage sources. An only very small amount of dietary caffeine intake is supplied by solid food. The daily caffeine intake of the adult population older than 22 was 300 mg in 2008; more than two-thirds of that amount originated from coffee drinking. The younger age groups consumed much less caffeine because their main beverage source was cola or tea, and those beverages contain much less caffeine than coffee. Women of childbearing age drank less coffee than other adult groups; consequently, their daily intake of caffeine was much less than the overall population's intake. Any change in the future caffeine intake of the U.S. population is dependent on coffee drinking habits, because all other caffeine sources make only minor contributions to overall caffeine consumption.

Table 33

Estimated Per Capita Daily Caffeine Intake by Gender and Age Derived from Import Statistics and Trade Association Reports

Age Group	People Age 2 +	Children 2-13	Males 14-21	Females 14-21	Adults 22 +	Females 16-45
Caffeine Intake, mg/day	240.7	43.5	110.5	103.4	300.7	208.2
From Beverages, mg/day	238.4	41.3	107.4	101.2	298.4	206.2
Coffee	153.7	2.5	25.3	33.7	206.5\[1]	123.9
Tea	24.3	7.9	24.5	16.2	28.6\[2]	24.1
Carbonated Beverages	40.0	17.0	45.3	36.3	40.5	42.0
Other Beverages	20.4	13.9	12.3	15.0	22.8[3]	16.2
From Food, mg/day	2.3	2.2	3.1	2.2	2.3	2.0

[1/] According to NCA survey (33) caffeine intake from coffee consumption of over 18 year old regular coffee drinkers is 374.7mg/day.

[2/] According to the Tea Association of USA (36) daily caffeine intake from tea by regular tea drinkers is about 58mg/day.

3/Assuming that 2% of the adult population are regular energy drinkers their caffeine intake is between 233 and 465 mg/day.

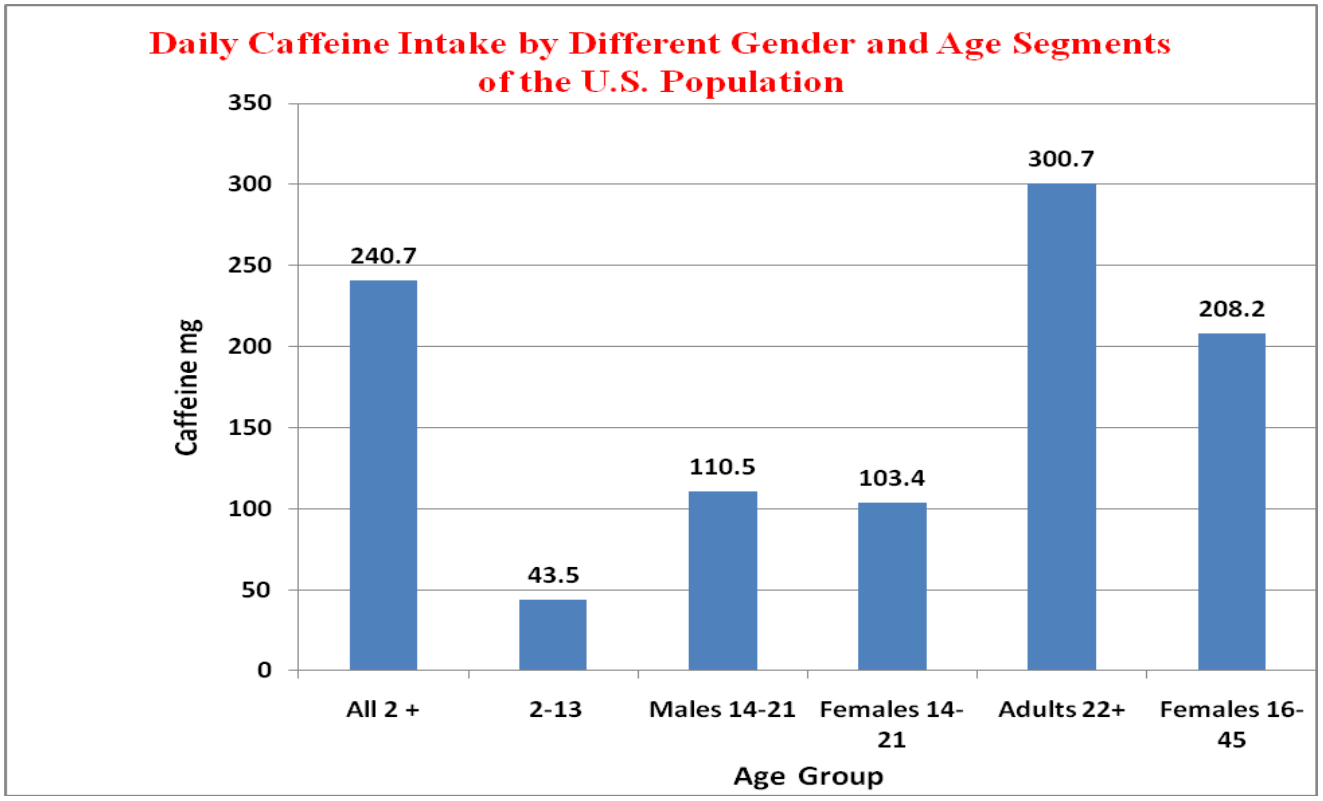
Source: Compiled by the author from the NPD Group's Nutrient Intake Database and trade association and industry information.

Table 34
Percent Daily Caffeine Intake by U.S. Population Segments from Food and Beverages Sources

Age Group	People Age 2 +	Children 2-13	Males 14-21	Females 14-21	Adults 22 +	Females 16-45
Caffeine Intake mg/day	240.7	43.5	110.5	103.4	300.7	208.2
From Beverages	99.0%	94.9%	97.2%	97.9%	99.2%	99.0%
Coffee	63.9%	5.7%	22.9%	32.6%	68.7%	59.5%
Tea	10.1%	18.2%	22.2%	15.7%	9.5%	11.6%
Carbonated Beverages	16.6%	39.1%	41.0%	35.1%	13.5%	20.2%
Other Beverages	8.5%	32.0%	11.1%	14.5%	7.6%	7.8%
From Food	1.0%	5.1%	2.8%	2.1%	0.8%	1.0%

Source: Compiled by the author from NPD Group's Nutrient Intake Database and trade association and industry information.

Figure 7



Source: Compiled by the author from the NPD Group's Nutrient Intake Database and trade association and industry information.

Figures 8 to 13 illustrate quantities of daily caffeine intake from various food and beverages sources by consumers' gender and age.

Figure 8

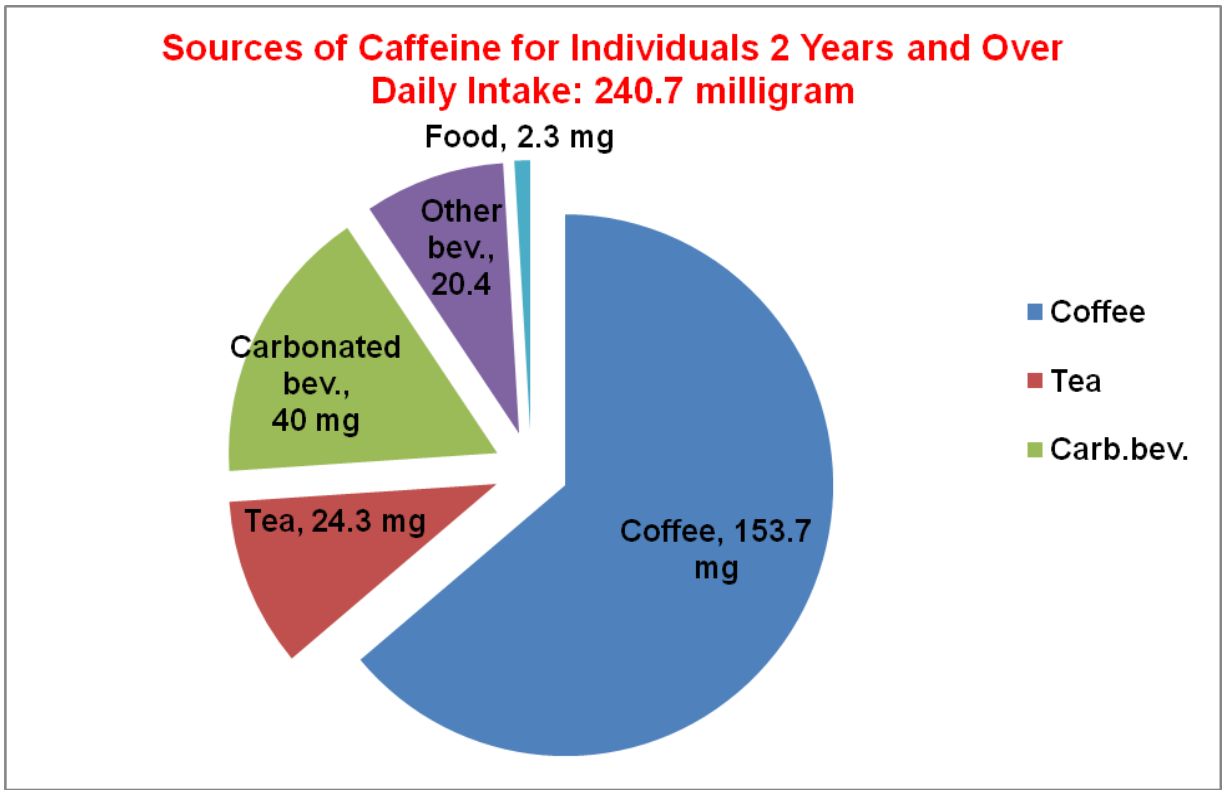


Figure 9

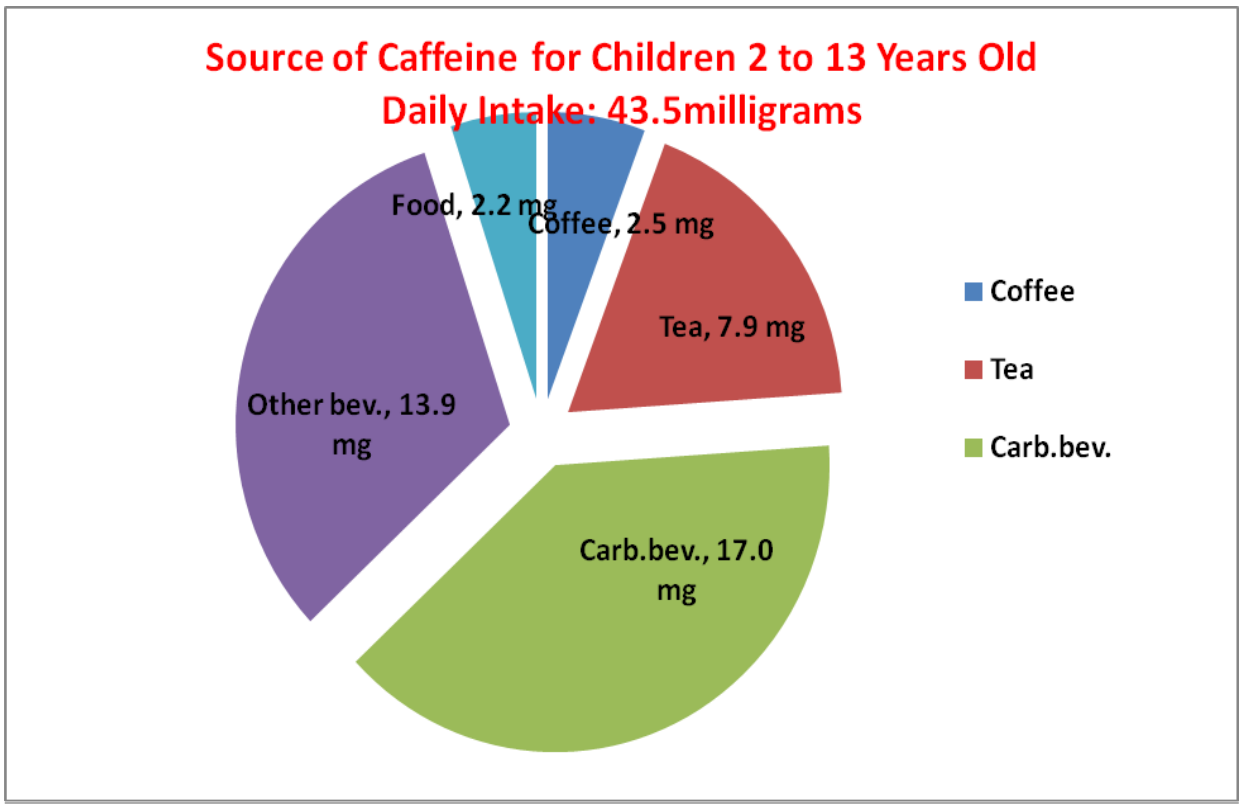

Source of Caffeine for Children 2 to 13 Years Old
Daily Intake: 43.5milligrams
Food, 2.2 mg
Coffee, 2.5 mg
Tea, 7.9 mg
Other bev., 13.9 mg
Carb.bev., 17.0 mg
Coffee
Tea
Carb.bev.

Figure 10

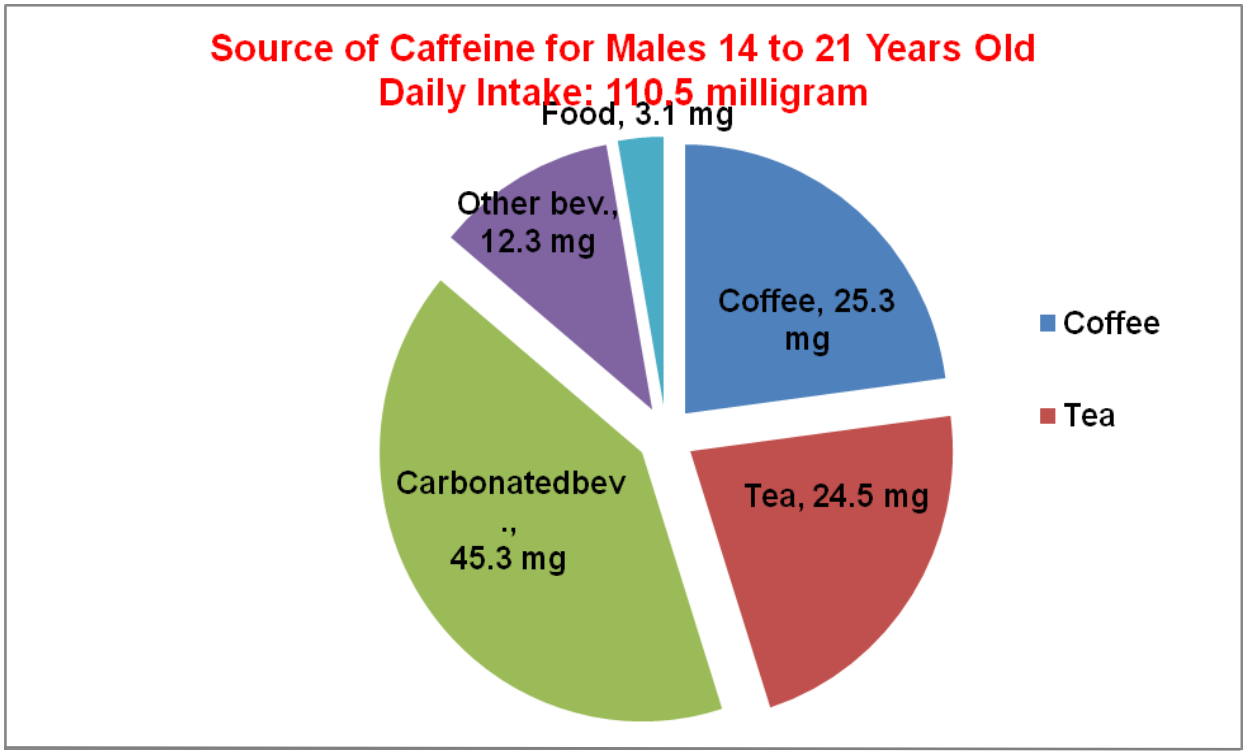


Figure 11

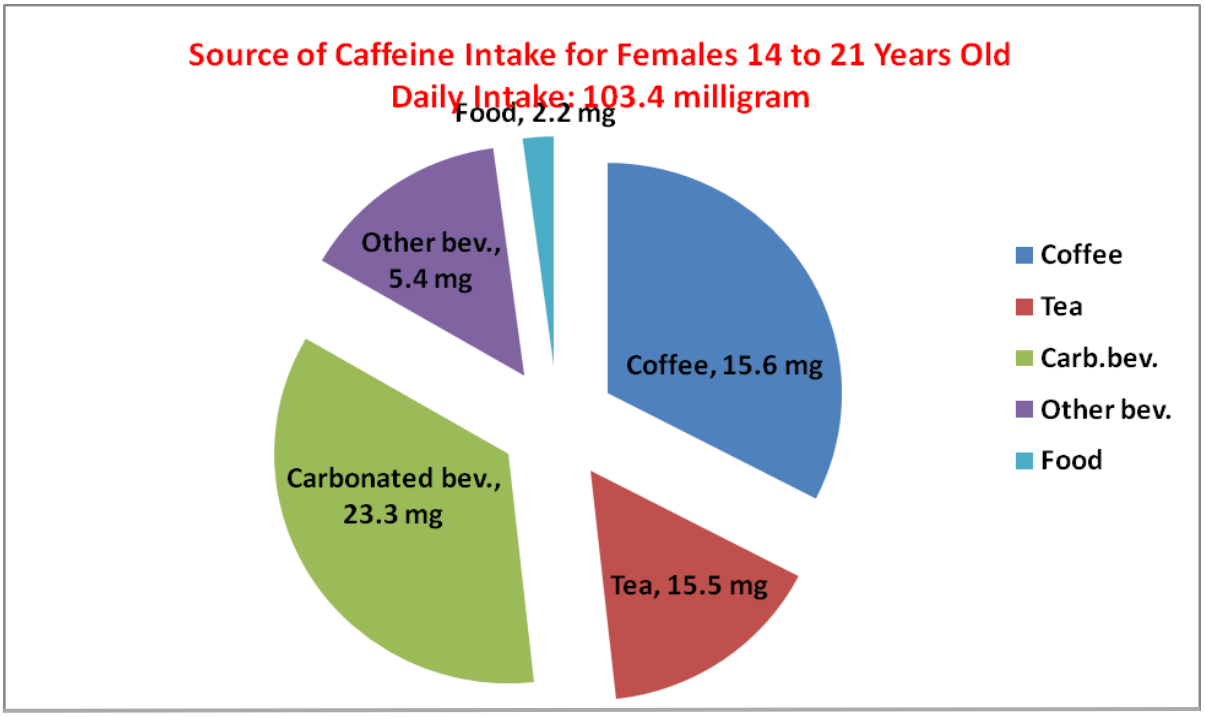


Figure 12

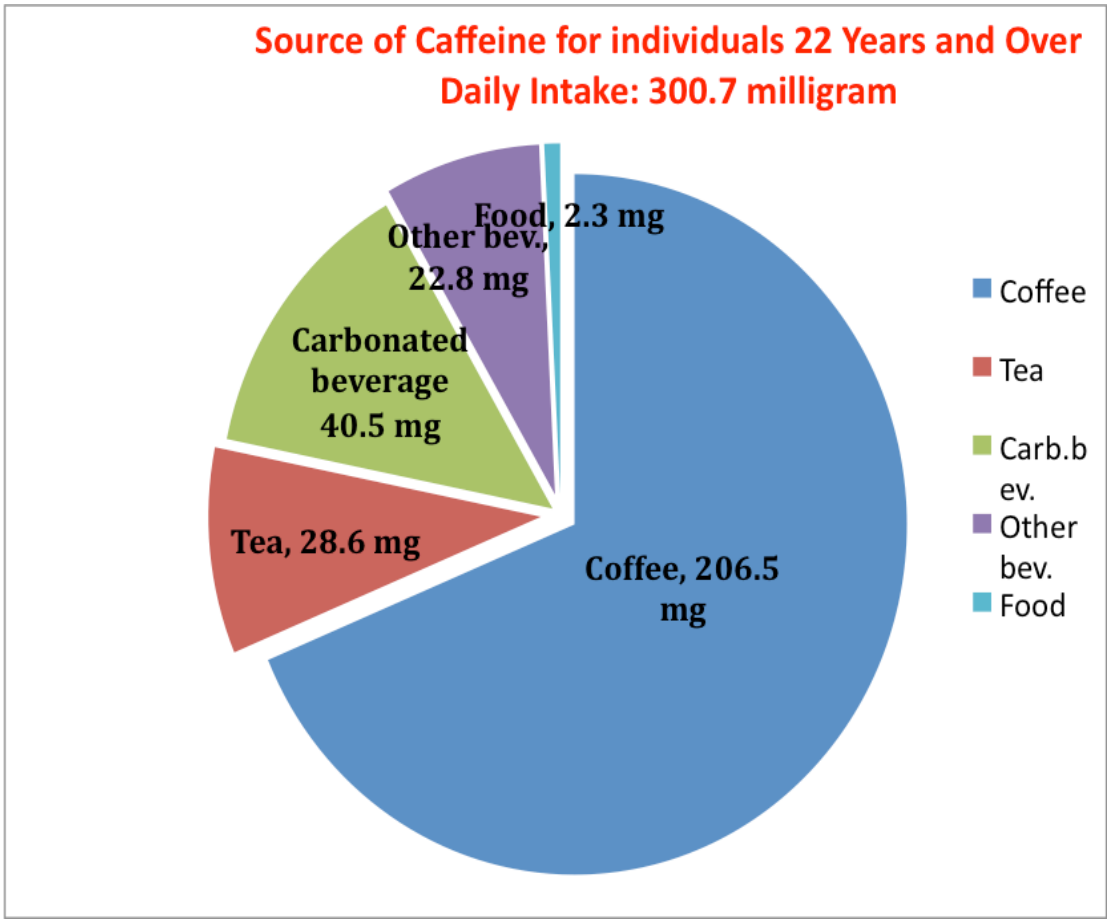
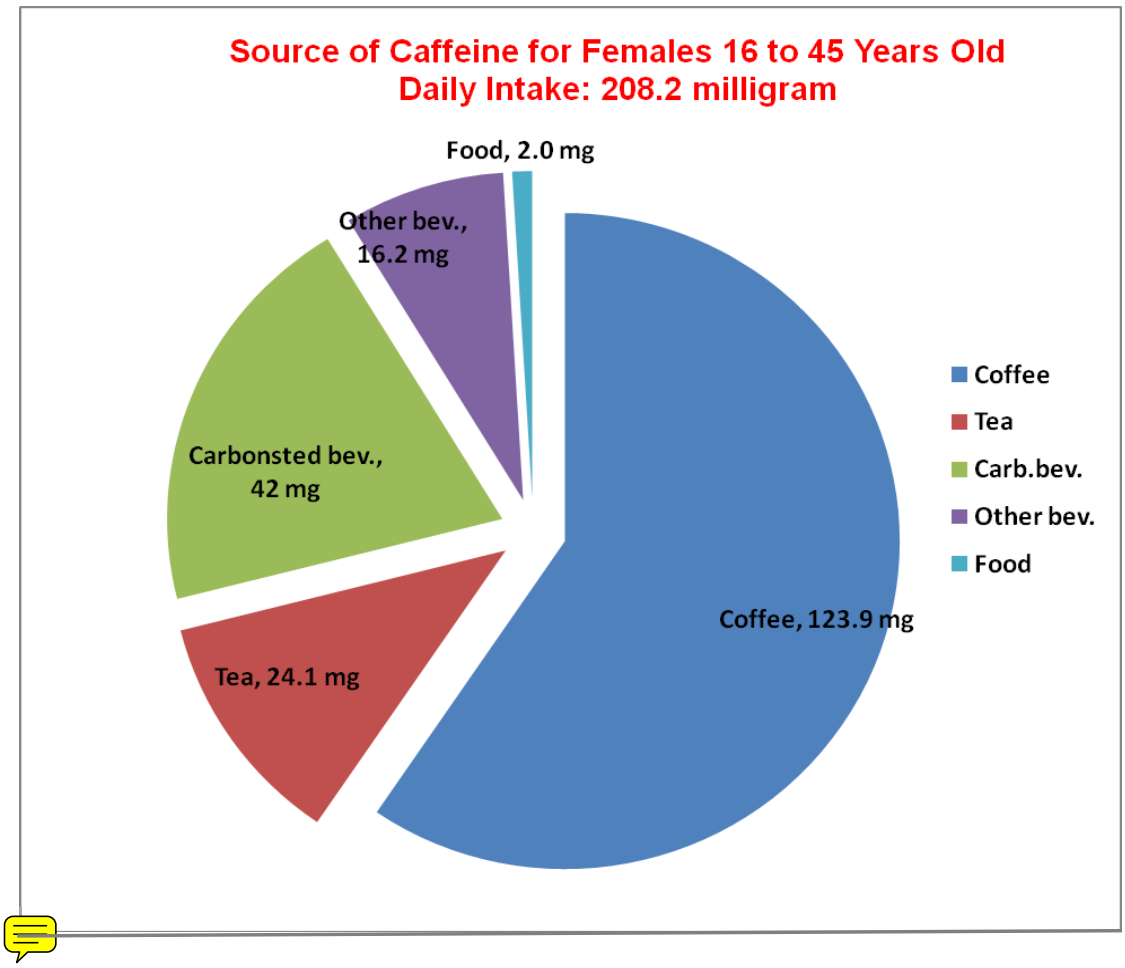

Source of Caffeine for individuals 22 Years and Over
Daily Intake: 300.7 milligram
Food, 2.3 mg
Other bev., 22.8 mg
Carbonated beverage 40.5 mg
Tea, 28.6 mg
Coffee, 206.5 mg
Coffee
Tea
Carb.bev.
Other bev.
Food

Figure 13


Source of Caffeine for Females 16 to 45 Years Old
Daily Intake: 208.2 milligram
Food, 2.0 mg
Other bev., 16.2 mg
Carbonsted bev., 42 mg
Tea, 24.1 mg
Coffee, 123.9 mg
Coffee
Tea
Carb.bev.
Other bev.
Food

Appendix A

NPD Group Daily Food Consumption Survey: "National Eating Trends" Data Collection: Method and Results

The NPD Group recruits households from a national mail panel to participate in its National Eating Trends survey. Candidates receive a sample diary, instructions, and a daily diary to complete and return. Only panelists returning acceptable diaries are asked to participate further in the study. Mailings are staggered throughout the year, with a different group beginning each Monday. Approximately 3,000 households are sent diaries, with about 2,500 households returning 10 or more diaries. From this group, 2,000 households are selected for the annual sample. Reporting is on an annual basis—March 1 through February 28—with 500 households in each quarterly subsample. Panelists receive a gift for participating.

Sample households are balanced with the total U.S. Census each quarter, using the Current Population Survey (CPS) for March from the previous year. Balancing factors include Family vs. Non-Family. Families are balanced in regard to household income, household size, age and employment status of the female homemaker (or male homemaker if the female is not present), race, and Census Region. Non-families are balanced on age, gender, household income, and Census Region.

Each participating panelist is sent 14 daily diaries to fill out, with information recorded for each household member. Diaries are mailed back as each is completed.

The survey captures all foods eaten in-home, carried from home, and eaten away-from-home in separate sections. Meal occasions are identified as main meals or snacks. Information collected includes detailed food descriptions, including brand names, preparation methods, and appliances used.

Households selected for the final 2,000 household sample must pass quality control checks on the completeness of reporting. Households must return at least 10 of 14 diaries to be considered for the sample. For each household, the number of main meals "reported" is tabulated. Reported meals include those with food recorded or meals recorded as "skipped" using a checkbox on the diary. Poor reporters are eliminated.

Tables A1-A6 and Figures A1-A6 show the results of the NPD surveys for various age and gender groups. The subgroups were selected according to the FDA guidelines; and adjustments by the author compiled from technical publications, the Internet, trade associations, and industry sources are provided for caffeine content figures.

The tables provide the following information:

- Identity of the food and beverage source
- Average daily volume of food or beverage consumed in grams
- Caffeine content in milligram per 100 g of product used by the NPD Group for the consumption estimate
- NPD group estimates for daily caffeine intake in milligrams
- Adjusted caffeine content per 100 g of product based on the revised data
- Adjusted estimates of daily caffeine intake in milligrams.

Please note that we believe that the data presented in the report's Conclusion section represent more reliable consumption figures that do the tables in Appendix A.

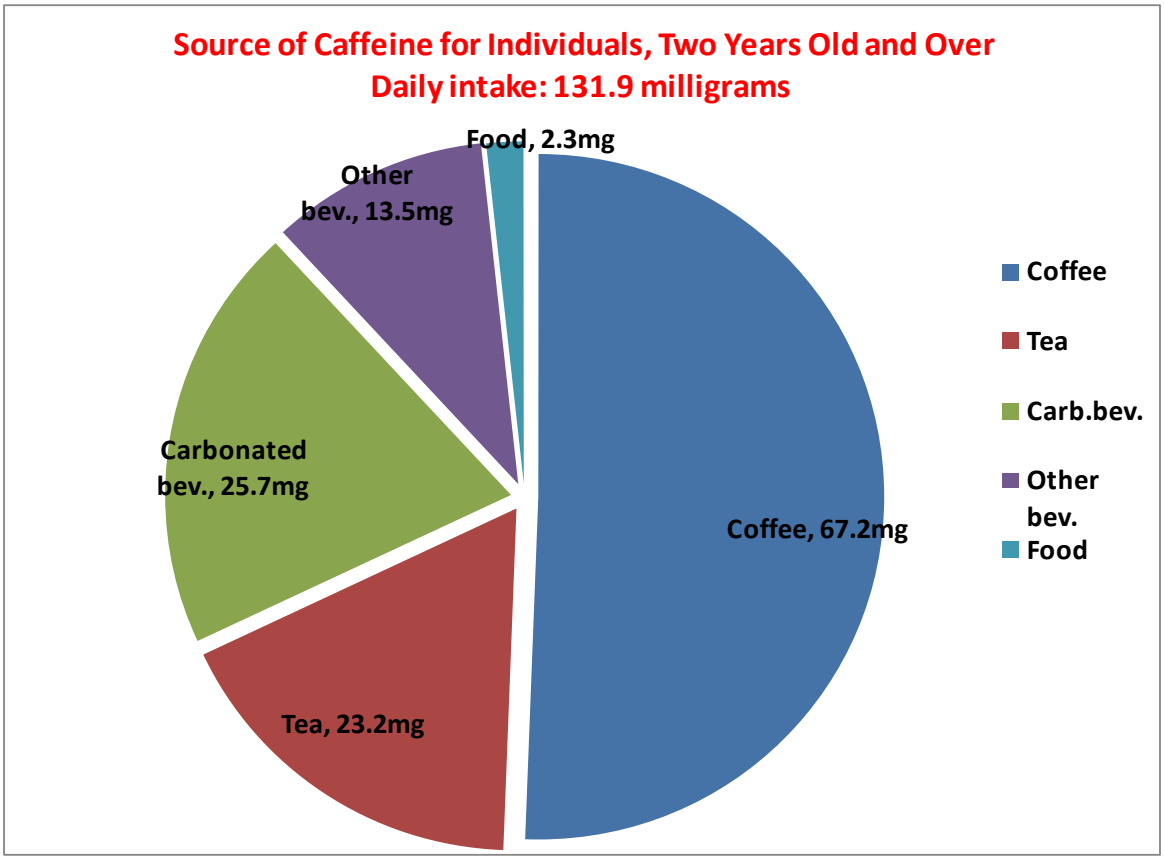
Table A1
Caffeine Intakes from Food and Beverage:
Mean Amounts per Capita Consumption in One Day by Individuals
2 Years Old and Over

Food or Beverage Source*	Consumption		NPD Group	Adjusted	
	Food or Beverage g/day	Caffeine Content mg/100 g	Caffeine Intake mg/day	Caffeine Content mg/100 g	Caffeine Intake mg/day
Total Daily Caffeine Intake			**77.4**		**131.9**
Total Beverages			**76.2**		**129.6**
Coffee	143.2	29.6	42.4		67.2
Coffee from Ground Regular IN	81.4	35.1	28.6	58.0	47.2
Coffee AF NS_Regular	18.6	35.5	6.6	58.0	10.8
Coffee Made From Ground Reg, Flav IN	9.2	35.9	3.3	58.0	5.3
Coffee Instant Regular IN	9.5	28.4	2.7	28.4	2.7
Coffee Espresso IN	0.1	300.0	*0.3*	254.0	0.3
Coffee made from Ground Decaf	22.1	0.9	*0.2*	2.0	0.4
Coffee Latte IN	0.3	66.7	*0.2*	33.0	0.1
Coffee Instant Flavored IN	0.9	22.2	*0.2*	24.0	0.2
Coffee Mocha IN	0.4	50.0	*0.2*	25.0	0.1
Cappuccino IN	0.7	14.3	*0.1*	21.0	0.1
Tea	120.4	15.4	18.5		23.2
Tea (excl. Instant) with sugar IN	64.0	15.5	9.9	20.0	12.8
Tea (excl.Instant) unswt. artif. swt. IN	25.8	16.3	4.2	20.0	5.2
Tea AF	21.3	15.5	3.3	20.0	4.3
Tea Powdered/Instant w/sugar IN	5.0	16.0	*0.8*	11.0	0.6
Tea Powd./Instant unswt. art. swt IN	4.3	7.0	*0.3*	7.0	0.3
Carbonated Soft Drink (CSD)	203.4	5.3	14.9		25.7
CSD:Cola	117.7	9.7	11.4	11.0	12.9
Cola Regular	67.6	9.3	6.3	11.0	7.4
Cola Sugar Free	50.1	10.2	5.1	11.0	5.5
CSD: All Other Flavored (non-cola)	85.7	4.1	3.5	12.0	10.3
All Other Flavor Regular	66.2	3.9	2.6	15.0	9.9
All Oth Flav Diet	19.5	4.6	*0.9*	15.0	2.9
Other Beverages	164.8	0.2	0.4		13.5
Milk/Chocolate Milk	124.2	0.2	*0.2*	3.0	3.7
Alcoholic Beverages	37.0	0.3	*0.1*	26.0	9.6
Energy Drinks	0.2	50.0	*0.1*	50.0	0.1
Hot Chocolate/Cocoa	3.4	0.0	*0.0*	3.0	0.1
Total Foods			***1.2***		**2.3**
Candy/Gum	3.0	16.7	*0.5*	10.0	0.3
Cookies (Except RTE Treat Bars)	5.2	5.8	*0.3*	20.0	1.0
Cakes	9.1	2.2	*0.2*	2.5	0.2
Frozen Ice Cream/Novelties	22.3	0.4	*0.1*	3.0	0.7
Pudding/Custard/Tapioca	4.3		*0.1*	2.5	0.1

*IN=In-home; AF=Away-from-home.

Source: The NPD Group Nutrient Database, February 2008, modified by the author. The sample size was 9,432 Individuals.

Figure A1



Source: Figures A1 to A6 are compiled by the author from the NPD Group's database.

Table A2

Caffeine Intakes from Food and Beverage: Mean Amounts per Capita Consumption in One Day by Individuals 22 Years Old and Over

Food or Beverage Source*	Consumption Food or Beverage g/day	Caffeine Content mg/100 g	Caffeine Intake mg/day	Adjusted Caffeine Content mg/100 g	Adjusted Caffeine Intake mg/day
Total Daily Caffeine Intake			**96.9**		**161.9**
Total Beverages			**95.9**		**159.6**
Coffee	191.9	29.1	56.9		90.3
Coffee from Ground Regular IN	108.8	35.1	38.2	58.0	63.1
Coffee AF NS, Regular	25.1	35.5	8.9	58.0	14.6
Coffee Made Frm Ground Reg, Flav IN	12.3	35.8	4.4	58.0	7.1
Coffee Instant Regular IN	12.8	28.9	3.7	28.4	3.6
Coffee Espresso IN	0.2	200.0	*0.4*	254.0	0.5
Coffee made from Ground Decaf	29.7	0.9	*0.3*	2.0	0.6
Coffee Latte IN	0.4	66.7	*0.3*	33.0	0.1
Coffee Instant Flavored IN	1.1	18.2	*0.2*	24.0	0.3
Coffee Mocha IN	0.6	50.0	*0.3*	25.0	0.2
Cappuccino IN	0.9	14.3	*0.2*	21.0	0.2
Tea	142.5	14.3	21.8		27.3
Tea (excl. Instant) w/sugar IN	75.7	15.5	11.7	20.0	15.1
Tea (excl.Instant) unswt. artif. swt. IN	30.6	16.3	5.0	20.0	6.1
Tea AF	25.8	15.1	3.9	20.0	5.2
Tea Powdered/Instant w/sugar IN	5.5	16.4	*0.9*	11.0	0.6
Tea Powdered/Instant unswt. art. swt IN	4.9	6.1	*0.3*	7.0	0.3
Carbonated Soft Drink (CSD)	227.7	7.4	16.9		26.0
CSD:Cola	136.9	9.6	13.2	11.0	15.1
Cola Regular	74.0	9.3	6.9	11.0	8.1
Cola Sugar Free	62.9	10.2	6.4	11.0	6.9
CSD:All Other Flavored (non-cola)	90.8	4.1	3.7	12.0	10.9
All Oth Flav Regular	66.4	3.9	2.6	15.0	10.0
All Oth Flav Diet	24.4	4.5	*1.1*	15.0	3.7
Other Beverages	145.0	0.2	0.3		16.0
Mi lk/Chocolate Mi lk	91.1	0.1	*0.1*	3.0	2.7
Alcoholic Beverages	50.1	0.2	*0.1*	26.0	13.0
Energy Drinks	0.3	33.3	*0.1*	50.0	0.2
Hot Chocolate/Cocoa	3.5	2.3	*0.0*	3.0	0.1
Total Foods			**1.0**		**2.3**
Candy/Gum	3.2	15.6	*0.5*	10.0	0.3
Cookies (Except RTE Treat Bars)	5.0	4.0	*0.2*	20.0	1.0
Cakes	9.5	2.1	*0.2*	2.5	0.2
Frozen Ice Cream/Novelties	22.5	0.4	*0.1*	3.0	0.7
Pudding/Custard/Tapioca	4.4	0	*0.0*	2.5	0.1

*IN=In-home; AFD Group Nutrient Database, February 2008, modified by the author.

Figure A2

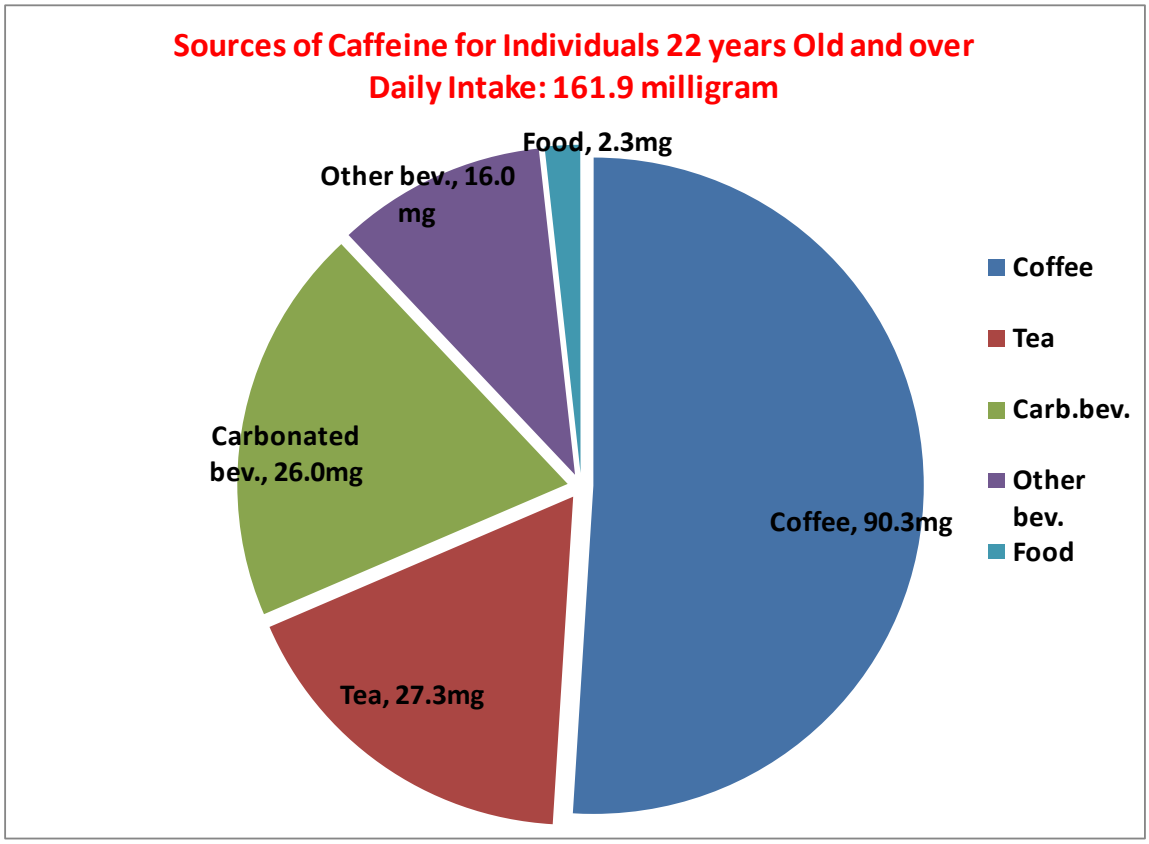

Sources of Caffeine for Individuals 22 years Old and over
Daily Intake: 161.9 milligram
Food, 2.3mg
Other bev., 16.0 mg
Carbonated bev., 26.0mg
Tea, 27.3mg
Coffee, 90.3mg
Coffee
Tea
Carb.bev.
Other bev.
Food

Table A3

Caffeine Intakes from Food and Beverage: Mean Amounts per Capita Consumption in One Day by Children, 2 to 13 Years Old

Food or Beverage Source*	Consumption Food or Beverage g/day	Caffeine Content mg/100 g	NPD Group Caffeine Intake mg/day	Adjusted Caffeine Content mg/100 g	Adjusted Caffeine Intake mg/day
Total Daily Caffeine Intake			**14.4**		**28.7**
Total Beverages			**13.5**		**26.5**
Coffee	2.4	28.0	*0.7*		1.1
Coffee from Ground Regular IN	0.8	37.5	*0.3*	58.0	0.5
Coffee AF NS, Regular	0.6	33.3	*0.2*	58.0	0.3
Coffee Made Frm Grnd Reg, Flav IN	0.2	50.0	*0.1*	58.0	0.1
Coffee Instant Regular IN	0.1	0.0	*0.0*	28.4	0.0
Coffee Espresso IN	0.0	300.0	*0.0*	254.0	0.0
Coffee made from Ground Decaf	0.4	0.9	*0.0*	2.0	0.0
Coffee Latte IN	0.0	66.7	*0.0*	33.0	0.0
Coffee Instant Flavored IN	0.2	24.0	*0.1*	25.0	0.1
Coffee Mocha IN	0.0	50.0	*0.0*	25.0	0.0
Cappuccino IN	0.3	14.3	*0.0*	21.0	0.1
Tea	39.6	15.6	6.0	19.1	7.5
Tea (excl. Instant) w/sugar IN	20.3	15.3	3.1	20.0	4.1
Tea (excl.Instant) unswt. artif. swt. IN	9.1	16.5	1.5	20.0	1.8
Tea AF	5.9	15.3	0.9	20.0	1.2
Tea Powdered/Instant w/sugar IN	1.8	16.7	*0.3*	11.0	0.2
Tea Powdered/Instant unswt. art. swt IN	2.5	8.0	*0.2*	7.0	0.2
Carbonated Soft Drink (CSD)	94.4	6.6	6.1		10.9
CSD:Cola	42.7	9.4	4.0	11.0	4.7
Cola Regular	32.8	9.5	3.1	11.0	3.6
Cola Sugar Free	9.9	10.1	1.0	11.0	1.1
CSD: All Other Flavored (non-cola)	51.8	4.1	2.1	12.0	6.2
All Oth Flav Regular	47.3	4.0	1.9	15.0	7.1
All Oth Flav Diet	4.5	4.4	*0.2*	15.0	0.7
Other Beverages	229.2	0.3	0.7		7.0
Milk/Chocolate Milk	225.7	0.3	0.6	3.0	6.8
Alcoholic Beverages	0.1	0.0	0.0	26.0	0.0
Energy Drinks	0.1	100.0	0.1	50.0	0.1
Hot Chocolate/Cocoa	3.3	0.0	0.0	3.0	0.1
Total Foods			***0.9***		**2.2**
Candy/Gum	2.1	9.5	*0.2*	10.0	0.2
Cookies (Except RTE Treat Bars)	5.6	5.4	*0.3*	20.0	1.1
Cakes	6.9	2.9	*0.2*	2.5	0.2
Frozen Ice Cream/Novelties	20.6	0.5	*0.1*	3.0	0.6
Pudding/Custard/Tapioca	4.1	2.4	*0.1*	2.5	0.1

*IN=In-home; AF=Away-from-home Source: The NPD Group Nutrient Database, February, 2008, modified by the author

Figure A3

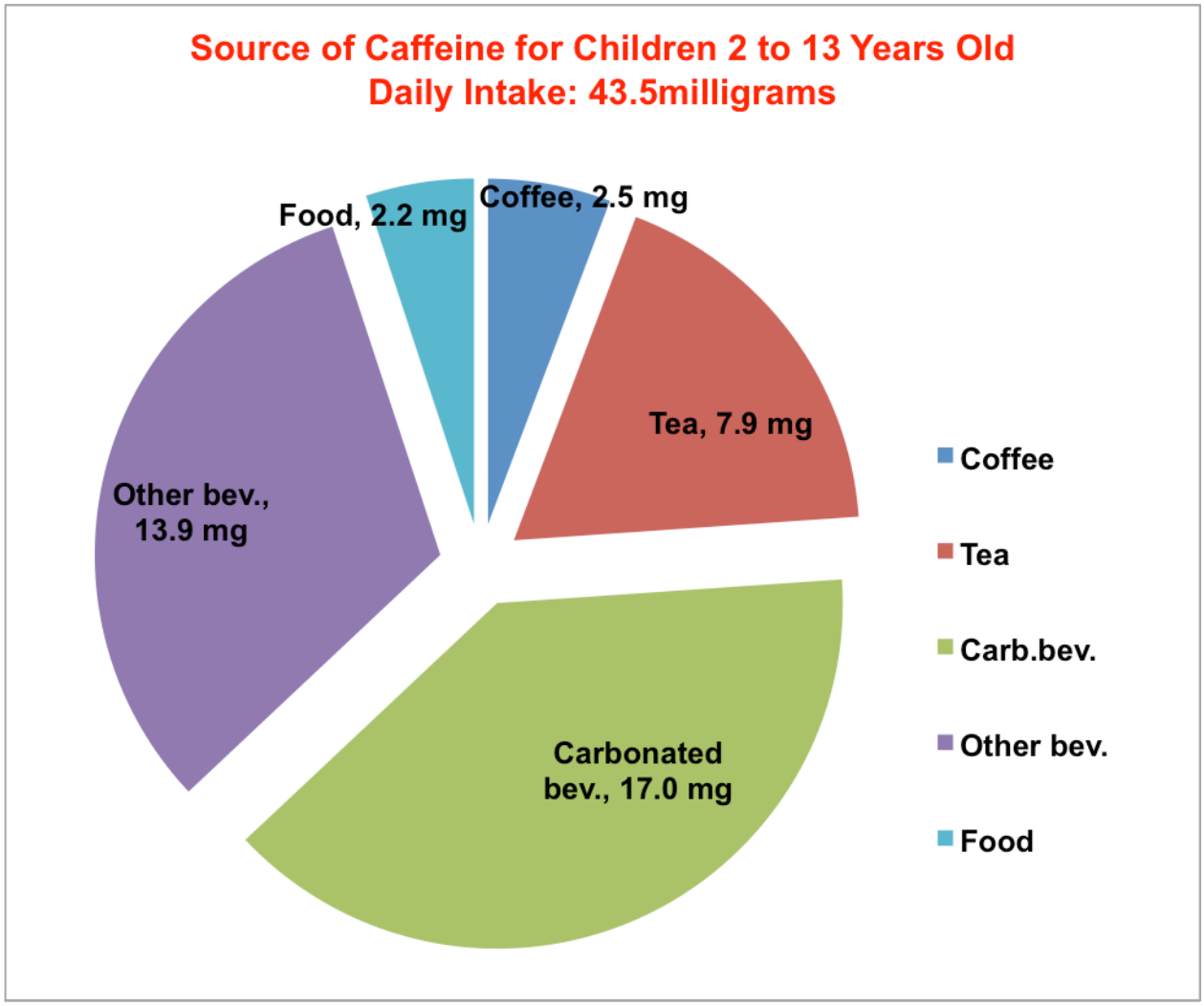

Source of Caffeine for Children 2 to 13 Years Old
Daily Intake: 43.5milligrams
Coffee, 2.5 mg
Tea, 7.9 mg
Carbonated bev., 17.0 mg
Other bev., 13.9 mg
Food, 2.2 mg
Coffee
Tea
Carb.bev.
Other bev.
Food

Table A4
Caffeine Intakes from Food and Beverage:
Mean Amounts per Capita Consumption in One Day by Males, 14 to 21 Years Old

Food or Beverage Source*	Consumption Food or Beverage g/day	Caffeine Content mg/100 g	NPD Group Caffeine Intake mg/day	Adjusted Caffeine Content mg/100 g	Adjusted Caffeine Intake mg/day
Total Daily Caffeine Intake			**44.4**		**74.9**
Total Beverages			**43.1**		**71.8**
Coffee	22.4	30.4	7.0		11.1
Coffee from Ground Regular IN	15.8	35.4	5.6	58.0	9.2
Coffee AF NS, Regular	1.4	35.7	*0.5*	58.0	0.8
Coffee Made Frm Grnd Reg, Flav IN	1.0	40.0	*0.4*	58.0	0.6
Coffee Instant Regular IN	1.2	33.3	*0.4*	28.4	0.3
Coffee Espresso IN	0.0	300.0	*0.0*	254.0	0.0
Coffee made from Ground Decaf	2.7	0.9	*0.0*	2.0	0.1
Coffee Latte IN	0.0	66.7	*0.0*	33.0	0.0
Coffee Instant Flavored IN	0.3	33.3	*0.1*	24.0	0.1
Coffee Mocha IN	0.0	50.0	*0.0*	25.0	0.0
Cappuccino IN	0.0	14.3	*0.0*	21.0	0.0
Tea	123.7	13.0	19.0		23.4
Tea (excl. Instant) w/sugar IN	68.1	15.4	10.5	20.0	13.6
Tea (excl.Instant) unswt. artif. swt. IN	23.6	16.5	3.9	20.0	4.7
Tea AF	19.2	15.1	2.9	20.0	3.8
Tea Powdered/Instant w/sugar IN	8.7	16.1	*1.4*	11.0	1.0
Tea Powd./Instant unswt. art. swt IN	4.1	7.3	*0.3*	7.0	0.3
Carbonated Soft Drink (CSD)	252.2	6.6	16.5		29.1
CSD:Cola	118.4	9.4	11.1	11.0	13.0
Cola Regular	96.9	9.3	9.0	11.0	10.7
Cola Sugar Free	21.5	10.2	2.2	11.0	2.4
CSD: All Other Flavored (non-cola)	134.2	4.0	5.4	12.0	16.1
All Oth Flav Regular	124.6	4.0	5.0	15.0	18.7
All Oth Flav Diet	9.6	4.2	*0.4*	15.0	1.4
Other Beverages	219.4	0.3	0.6		8.2
Milk/Chocolate Milk	210.0	0.2	*0.5*	3.0	6.3
Alcoholic Beverages	6.3	0.0	*0.0*	26.0	1.6
Energy Drinks	0.3	33.3	*0.1*	50.0	0.2
Hot Chocolate/Cocoa	2.8	0.0	*0.0*	3.0	0.1
Total Foods			**1.3**		**3.1**
Candy/Gum	2.7	11.1	*0.3*	10.0	0.3
Cookies (Except RTE Treat Bars)	7.3	6.8	*0.5*	20.0	1.5
Cakes	13.2	2.3	*0.3*	2.5	0.3
Frozen Ice Cream/Novelties	28.5	0.4	*0.1*	3.0	0.9
Cakes	5.0	2.0	*0.1*	2.5	0.1

*IN=In-home; AF=Away-from-home; Source: The NPD Group Nutrient Database, February 2008, modified by the author

Figure: A4

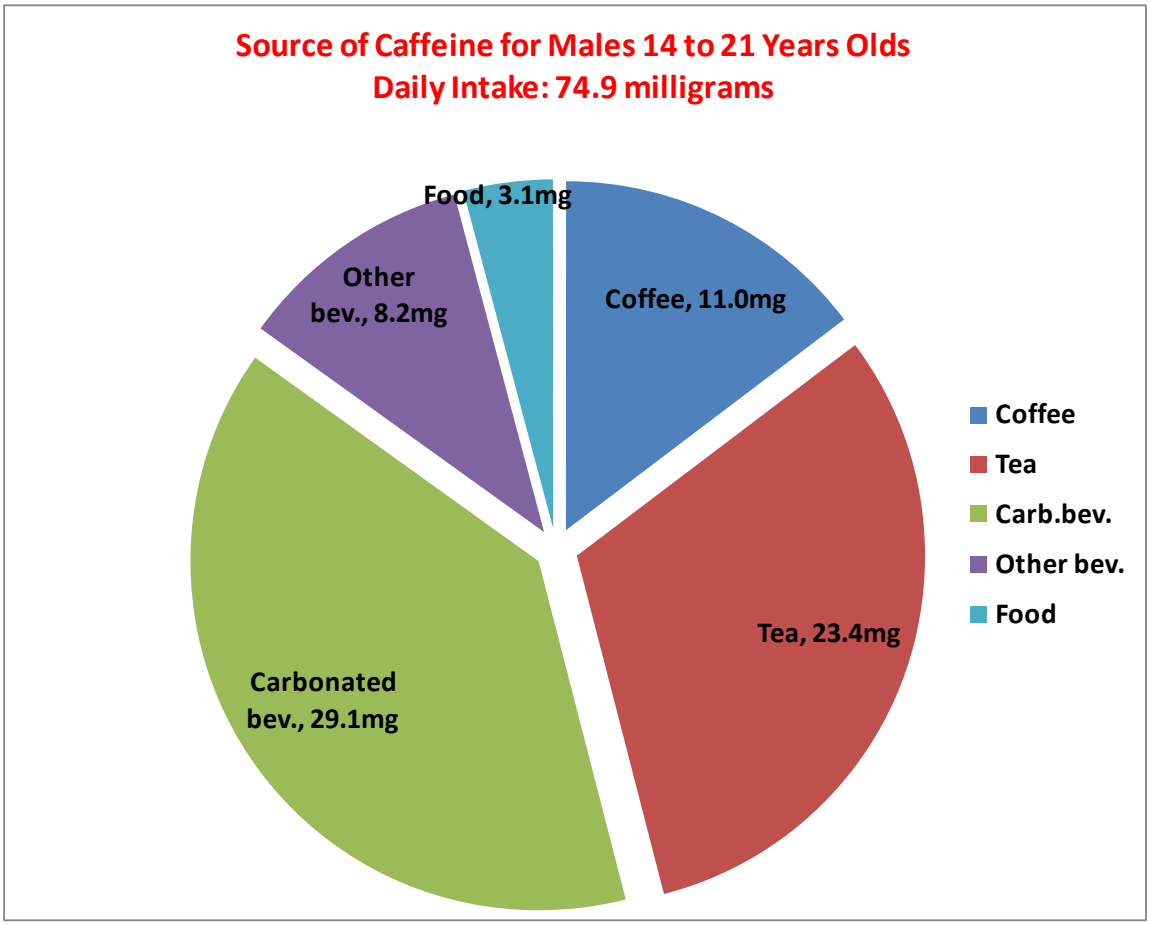

Source of Caffeine for Males 14 to 21 Years Olds
Daily Intake: 74.9 milligrams
Food, 3.1mg
Other bev., 8.2mg
Coffee, 11.0mg
Tea, 23.4mg
Carbonated bev., 29.1mg
Coffee
Tea
Carb.bev.
Other bev.
Food

Table A5
Caffeine Intakes from Food and Beverage:
Mean Amounts per Capita Consumption in One Day by Females, 14 to 21 Years Old

Food or Beverage Source*	Consumption Food or Beverage g/day	Caffeine Content mg/100 g	NPD Group Caffeine Intake mg/day	Adjusted Caffeine Content mg/100 g	Adjusted Caffeine Intake mg/day
Total Daily Caffeine Intake			**39.0**		**62.0**
Total Beverages			**38.1**		**59.8**
Coffee	30.8	34.7	10.6		15.6
Coffee from Ground Regular IN	20.7	40.1	8.3	58.0	12.0
Coffee AF NS, Regular	3.1	35.5	1.1	58.0	1.8
Coffee Made Frm Grnd Reg, Flav IN	2.3	34.8	*0.8*	58.0	1.3
Coffee Instant Regular IN	1.3	30.8	*0.4*	28.4	0.4
Coffee Espresso IN	0.0	300.0	*0.0*	254.0	0.0
Coffee made from Ground Decaf	3.2	0.0	*0.0*	2.0	0.1
Coffee Latte IN	0.0	80.0	*0.0*	33.0	0.0
Coffee Instant Flavored IN	0.1	0.0	*0.0*	24.0	0.0
Coffee Mocha IN	0.0	25.0	*0.0*	25.0	0.0
Cappuccino IN	0.1	0.0	*0.0*	21.0	0.0
Tea	81.6	15.4	12.6		15.5
Tea (excl. Instant) w/sugar IN	44.0	15.5	6.8	20.0	8.8
Tea (excl.Instant) unswt. artif. swt. IN	16.1	16.8	2.7	20.0	3.2
Tea AF	13.3	15.0	2.0	20.0	2.7
Tea Powdered/Instant w/sugar IN	6.0	16.7	*1.0*	11.0	0.7
Tea Powdered/Instant unswt. art. swt IN	2.2	4.5	*0.1*	7.0	0.2
Carbonated Soft Drink (CSD)	203.1	7.1	14.4		23.3
CSD:Cola	108.2	9.6	10.4	11.0	11.9
Cola Regular	75.9	9.4	7.1	11.0	8.3
Cola Sugar Free	32.3	10.2	3.3	11.0	3.6
CSD:All Other Flavored (non-cola)	94.9	4.2	4.0	12.0	11.4
All Oth Flav Regular	83.2	4.2	3.5	15.0	12.5
All Oth Flav Diet	11.7	4.3	*0.5*	15.0	1.8
Other Beverages	243.4	0.2	*0.5*		5.4
Milk/Chocolate Milk	167.6	0.2	0.4	3.0	5.0
Alcoholic Beverages	0.9	0.0	0.0	26.0	0.2
Energy Drinks	0.2	0.0	0.0	50.0	0.1
Hot Chocolate/Cocoa	3.7	2.7	0.1	3.0	0.1
Total Foods			**0.9**		**2.2**
Candy/Gum	2.1	9.5	*0.2*	10.0	0.2
Cookies (Except RTE Treat Bars)	5.3	7.5	*0.4*	20.0	1.1
Cakes	8.4	2.4	*0.2*	2.5	0.2
Frozen Ice Cream/Novelties	20.1	0.5	*0.1*	3.0	0.6
Pudding/Custard/Tapioca	2.5	0.0	*0.0*	2.5	0.1

*IN=In-home; AF=Away-from-home; Source: The NPP Group Nutrient Database, February 2008, modified by the author.

Figure A5

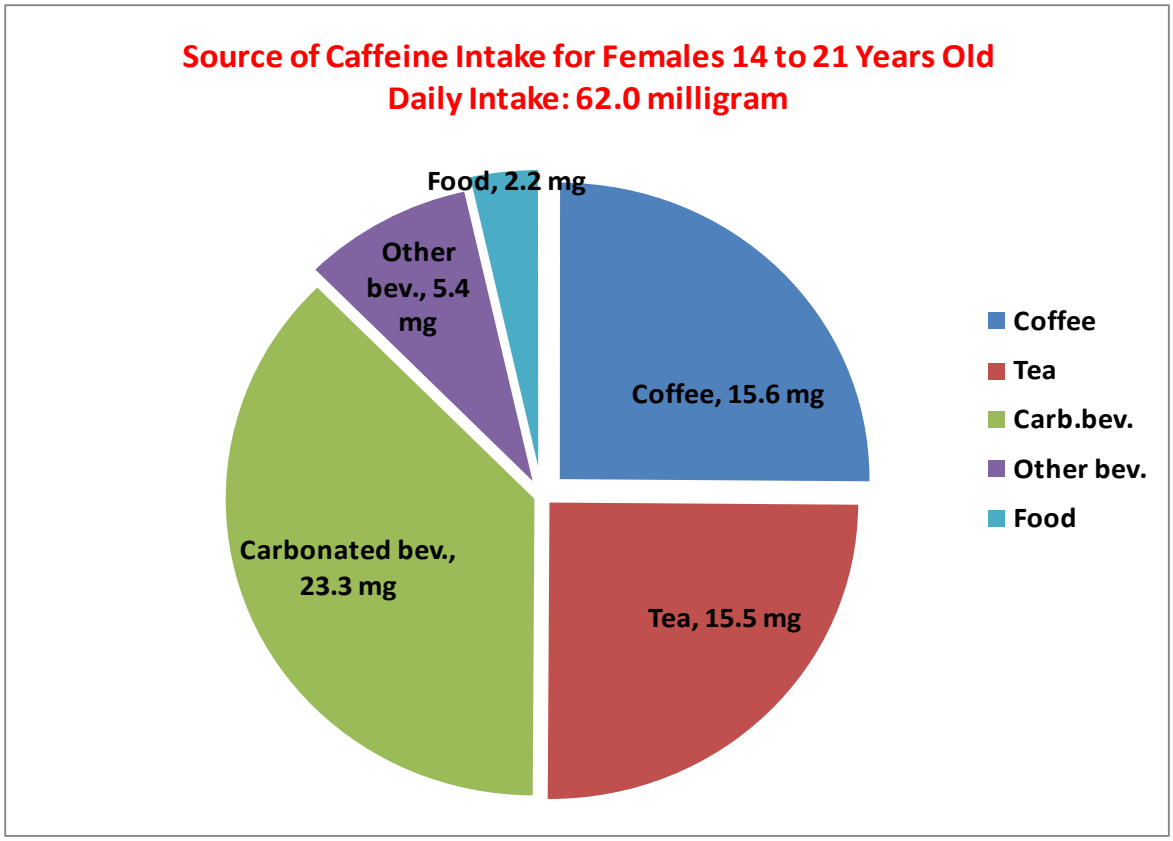
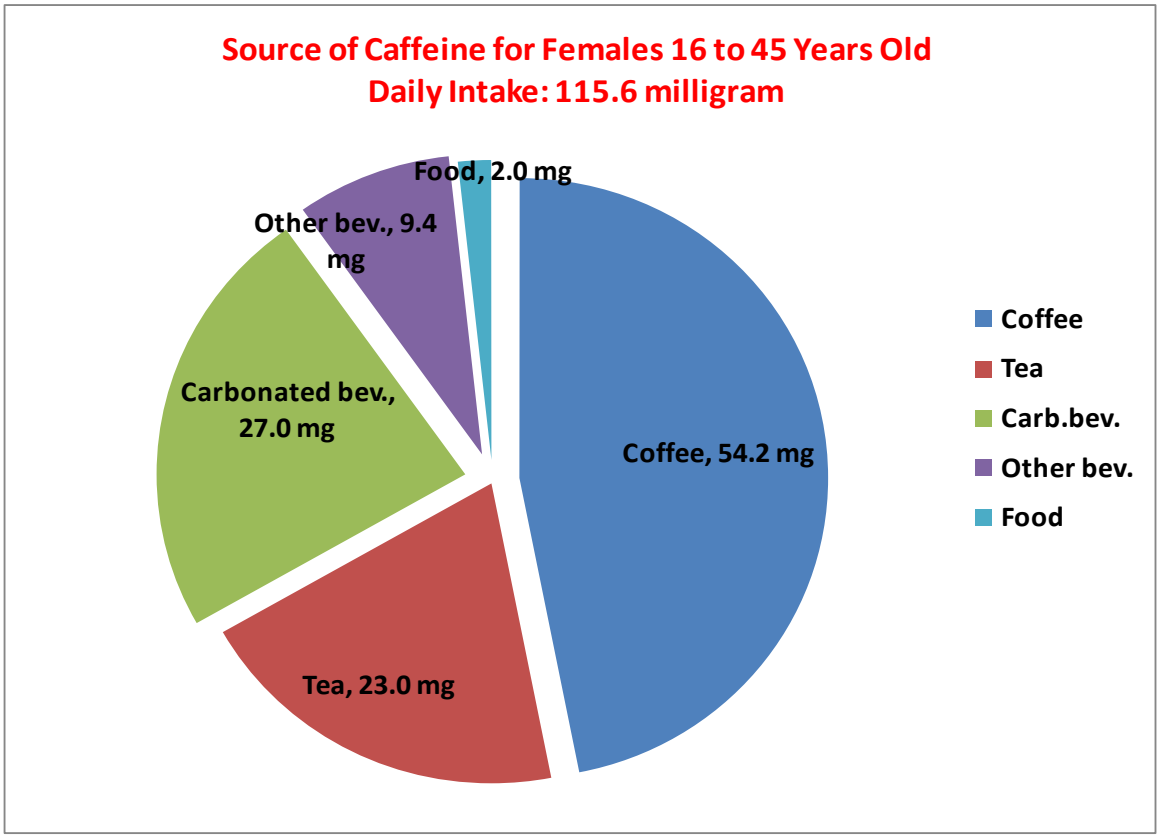

Source of Caffeine Intake for Females 14 to 21 Years Old
Daily Intake: 62.0 milligram
Food, 2.2 mg
Other bev., 5.4 mg
Coffee, 15.6 mg
Carbonated bev., 23.3 mg
Tea, 15.5 mg
Coffee
Tea
Carb.bev.
Other bev.
Food

Table A6
Caffeine Intakes from Food and Beverage:
Mean Amounts per Capita Consumption in One Day by Females, 16 to 45 Years Old

Food or Beverage Source*	Consumption Food and Beverage g/day	Caffeine Content mg/100 g	NPD Caffeine Intake mg/day	Adjusted Caffeine Content mg/100 g	Adjusted Caffeine Intake mg/day
Total Daily Caffeine Intake			**71.7**		**115.6.**
Total Beverages			**70.4**		**113.6**
Coffee	109.8	31.4	34.5		54.2
Coffee from Ground Regular IN	65.7	35.2	23.1	58.0	38.1
Coffee AF NS, Regular	13.1	35.1	4.6	58.0	7.6
Coffee Made Frm Grnd Reg, Flav IN	9.1	36.3	3.3	58.0	5.3
Coffee Instant Regular IN	6.5	29.2	1.9	28.4	1.8
Coffee Espresso IN	0.1	200.0	*0.2*	254.0	0.3
Coffee made from Ground Decaf.	11.6	0.9	*0.1*	2.0	0.2
Coffee Latte IN	1.0	80.0	*0.8*	33.0	0.3
Coffee Instant Flavored IN	0.9	22.2	*0.2*	24.0	0.2
Coffee Mocha IN	0.5	25.0	*0.2*	25.0	0.1
Cappuccino IN	1.3	15.4	*0.2*	21.0	0.3
Tea	118.2	15.5	18.3		23.0
Tea (excl. Instant) w/sugar IN	66.9	15.4	10.3	20.0	13.4
Tea (excl.Instant) unswt. artif. swt. IN	24.3	16.5	4.0	20.0	4.9
Tea AF	21.0	15.2	3.2	20.0	4.2
Tea Powdered/Instant w/sugar IN	4.0	17.5	*0.7*	11.0	0.4
Tea Powdered/Instant unswt. art. swt IN	2.0	5.0	*0.1*	7.0	0.1
Carbonated Soft Drink (CSD)	236.5	7.3	17.1	11.4	27.0
CSD:Cola	132.8	9.6	12.8	11.0	14.6
Cola Regular	76.6	9.4	7.2	11.0	8.4
Cola Sugar Free	56.2	10.3	5.8	11.0	6.2
CSD:All Other Flavored (non-cola)	103.7	4.1	4.3	12.0	12.4
All Oth Flav Regular	79.7	4.0	3.2	15.0	12.0
All Oth Flav Diet	24.0	4.6	1.1	15.0	3.6
Other Beverages	130.8	0.3	0.4		9.4
Milk/Chocolate Milk	103.0	0.1	0.1	3.0	3.1
Alcoholic Beverages	23.1	0.4	0.1	26.0	6.0
Energy Drinks	0.4	25.0	0.1	50.0	0.2
Hot Chocolate/Cocoa	4.3	2.3	0.1	3.0	0.1
Total Foods			***1.3***		**2.0**
Candy/Gum	3.3	15.2	0.5	10.0	0.3
Cookies (Exept RTE Treat Bars)	4.2	4.8	0.2	20.0	0.8
Cakes	8.2	2.4	0.2	2.5	0.2
Frozen Ice Cream/Novelties	19.8	0.5	0.1	3.0	0.6
Pudding/Custard/Tapioca	2.8	0.0	0.0	2.5	0.1

*IN=In-home; AF=Away-from-home.
Source: The NPD Group Nutrient Database, February 2008, modified by the author. Sample size: 2,027

Figure A6


Source of Caffeine for Females 16 to 45 Years Old
Daily Intake: 115.6 milligram
Food, 2.0 mg
Other bev., 9.4 mg
Carbonated bev., 27.0 mg
Coffee, 54.2 mg
Tea, 23.0 mg
Coffee
Tea
Carb.bev.
Other bev.
Food

References

Information or many popular brands was obtained from the brand's Web site, from the nutrition label, or from communications with the manufacturer. For more generic items, a number of different research articles were reviewed as well. Note that online articles frequently change, or are deleted or updated. The online references listed below were verified as of July 2009.

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