HOGAN LOVELLS US LLP

GRAS Notice for Fruit and Vegetable Vitamin Extract Blend

January 27, 2017

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1.0 GRAS Statement and Certification

1.1 Claim of Exemption

On behalf of NutriFusion LLC (NutriFusion), Hogan Lovells US LLP (Hogan) is submitting this generally recognized as safe (GRAS) notice summarizing the data and information supporting NutriFusion's conclusion that its intended use of vitamins extracted from edible portions of commonly consumed fruits and vegetables using conventional extraction procedures are GRAS for use in foods intended for infants from six to 12 months of age, toddlers and young children from one to four, and the general population four and over, when used as a substitute for commercially available synthetic vitamin blends.

1.2 Name and Address of the Notifier

Martin J. Hahn and Xin Tao
Hogan Lovells US LLP
555 Thirteenth Street, NW
Washington, DC 20004

1.3 Name of the Notified Substance

Fruit and vegetable vitamin extract blend.

The NutriFusion product contains a blend of water- and fat-soluble vitamins including, but not limited to, beta-carotene (provitamin A), vitamin C, vitamin D, vitamin E, vitamin K_1, vitamin B_1, vitamin B_2, vitamin B_3, vitamin B_5, vitamin B_6, vitamin B_7, and vitamin B_9. Examples of appropriate descriptive names for the NutriFusion products would be "Plant Nutrient Extract Blend" or "Fruit and Vegetable Vitamin Extract Blend." For purposes of ingredient labeling, NutriFusion encourages its customers to identify each of the plants that are used as the source of the extracted vitamins (e.g., "Plant Nutrient Extract Blend (Nutrient Extracts from Tomato, Broccoli, Carrot, Shitake Mushrooms, Cranberry, Apple, Orange)" or "Fruit and Vegetable Vitamin Extract Blend (Vitamins Extracted from Tomato, Broccoli, Carrot, Shitake Mushrooms, Cranberry, Apple, Orange)").

1.4 Intended Conditions of Use

The NutriFusion product will be used as a substitute for other commercially available vitamins that are added to foods. The NutriFusion product can be included in baby foods (excluding use as a supplement to breast milk or infant formula) for infants from six to 12 months and children from one to four years old. Examples of these products include baby and toddler pureed fruits and vegetables, dinners, dairy-based foods intended for children six months up to four years, and toddler meals. For products intended for children four and over and adults, the NutriFusion product is intended to be used as a substitute for the existing commercially available vitamins on the market.

While typical use levels will vary depending on the manufacturer and the product, 450 mg of the product is specifically formulated to provide 100% of the daily value (DV) for the specific

vitamins in the blend. Some manufacturers will opt to use the NutriFusion blend in foods for children four and over and adults at 100% of the DV, while others will add it at lower levels. For foods intended for infants six months and older and children one to four, typical use levels are 25% of the DV and generally would not exceed 50% of the DV for the specific subgroup of the population targeted by the manufacturer.

1.5 Statutory Basis of GRAS Conclusion

Through scientific procedures in accordance with 21 CFR § 170.30(a) and (b).

1.6 GRAS Statement

The notified substance is not subject to the premarket approval requirements of the Federal Food, Drug, and Cosmetic Act based on the NutriFusion's conclusion that the notified substance is GRAS under the conditions of the intended use.

1.7 Availability of Information

A complete copy of the data and information that was used as a basis for this GRAS conclusion can be provided to the FDA upon request, and is also available for FDA's copying and reviewing during customary business hours at:

Martin J. Hahn and Xin Tao
Hogan Lovells US LLP
555 Thirteenth Street, NW
Washington, DC 20004

1.8 Trade Secret and Confidential Information

Certain information regarding the manufacturing section of this GRAS notice is exempt from disclosure under the Freedom of Information Act, 5 U.S.C. 552.

1.9 GRAS Certification

To the best of our knowledge, the GRAS notice is a complete, representative, and balanced submission that includes unfavorable information, as well as favorable information, known to us and pertinent to the evaluation of the safety and GRAS status of the use of the substance.

1.10 Signature

(b) (6)

Martin J. Hahn
Hogan Lovells US LLP
martin.hahn@hoganlovells.com
202 637 5926

2.0 Identity, Method of Manufacture, Specifications, and Physical or Technical Effect

2.1 Identity

The NutriFusion product contains a blend of water- and fat-soluble vitamins and other nutrients including, but not limited to, beta-carotene (provitamin A), vitamin C, vitamin D, vitamin E, vitamin K_1, vitamin B_1, vitamin B_2, vitamin B_3, vitamin B_5, vitamin B_6, vitamin B_7, and vitamin B_9.

Table 1. Identity of Vitamins Extracted from Fruits and Vegetables

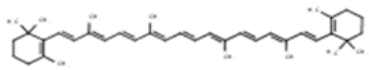
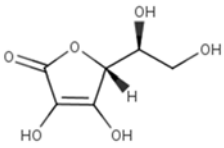
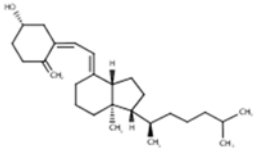
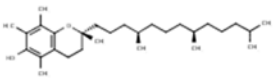
Name	CAS Number	Molecular Formula	Molecular Weight	
Beta carotene	7235-40-7		537	Provitamin A; Vitamin A precursor
Vitamin C	50-81-7		176	L- (+) - Ascorbic acid
Vitamin D_3	67-97-0		385	Cholecalciferol
Vitamin E	59-02-9		431	Alpha-Tocopherol

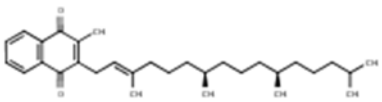
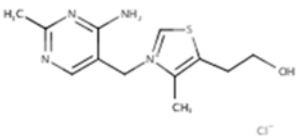
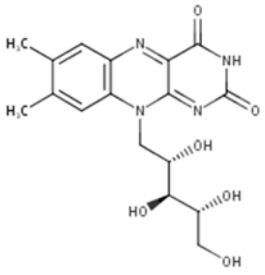
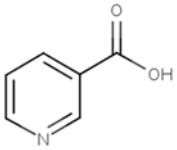
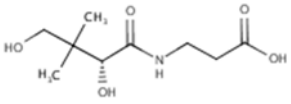
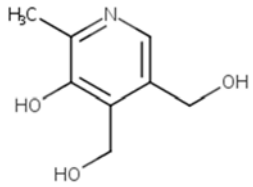
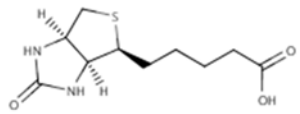
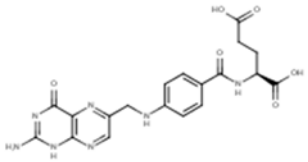
Table 1. Identity of Vitamins Extracted from Fruits and Vegetables				
Name	**CAS Number**	**Molecular Formula**	**Molecular Weight**	**Synonyms**
Vitamin K_1	84-80-0		451	Phylloquinone
Vitamin B_1	59-43-8		301	Thiamine
Vitamin B_2	83-88-5		376	Riboflavin
Vitamin B_3	59-67-6		123	Niacin
Vitamin B_5	79-83-4		219	Pantothenic acid

Table 1. Identity of Vitamins Extracted from Fruits and Vegetables				
Name	**CAS Number**	**Molecular Formula**	**Molecular Weight**	**Synonyms**
Vitamin B_6	65-23-6		169	Pyridoxine
Vitamin B_7	58-85-5		244	Biotin
Vitamin B_9	59-30-3		441	Folate

2.2 Characteristic Properties

Appearance: Powder

Color: Pale orangish pink

Loss on drying: Not more than 10.0%

2.3 Quantitative Composition 1/

Table 2. Quantitative Composition of a NutriFusion Blend	
Substance	**Levels**
Total fat	0.6 %
Total protein	4.2 %

1/ Please note that as the vegetables or fruits used to make each NutriFusion blend may vary, the quantitative compositions of each blend will vary as well.

Table 2. Quantitative Composition of a NutriFusion Blend	
Total ash	4.9 %
Cholesterol	< 1 mg/100 g
Total sugars	11.9 g/100 g
Fiber	11.3%
Total starch	< 10 mg/100 g

The NutriFusion blend can be tailored to provide the specific vitamins requested by customers. The company's standard blends offer either six or 12 vitamins that are standardized to meet the levels requested by the customer. Below, we provide the typical composition of 225 mg of the 12 nutrient blend.

Table 3. Vitamin Quantitative Composition per 225.00 mg of the 12 Nutrient Blended Extract 2/	
Nutrient	**Levels**
Beta-carotene (beta-carotene)	> 2,500 IU
Vitamin C	> 30 mg
Vitamin D	> 200 IU
Vitamin E	> 15 IU
Vitamin K_1	> 40 µg
Vitamin B_1	> 0.75 mg
Vitamin B_2	> 0.85 mg
Vitamin B_3	> 10 mg
Vitamin B_5	> 5 mg
Vitamin B_6	≥ 1 mg
Vitamin B_7	> 0.15 mg
Vitamin B_9 (folate)	> 0.2 mg

We are attaching copies of analytical reports from four different production lots of NutriFusion blends. In particular, the first three production lots (i.e., NF-216, NF-316, and NF-416) are from one of the company's six vitamin blend offerings while the fourth (i.e., NF-661) is from a 12 vitamin blend. The results demonstrate the company is able to offer a standardized blend that meets the specification established for the specifically requested vitamin in the product. For products lots NF-216, NF-316, and NF-416, the six vitamin blend is represented as containing (per 225 mg) > 30 mg of vitamin C, > 0.75 mg of thiamin, 1 mg of pyridoxine, > 2500 IU vitamin A, >15 IU vitamin E, and > 200 IU vitamin D. *See* **Attachments 1, 2, and 3**. With the exception of a negligibly lower reading for pyridoxine in NF-216 with a reading of 0.992 mg rather than 1.0 mg and a reading of 29.7 mg vitamin C in NF-416 rather than 30 mg, each of the three batches comply with the established specifications. Because the plants used as the source of these vitamins are also natural sources of other vitamins, the analytical report will reveal the presence of other vitamins in the blend as well. These other vitamins will be present at varying levels depending on the fruit and vegetable sources used for the vitamins, but are all lower than the specifications established for the 12 vitamin blend. The 12 vitamin blend is represented as containing > 30 mg of vitamin C, > 0.75 mg of thiamin, > 0.85 mg riboflavin, > 10 mg niacin, >5

2/ The products will be formulated to meet the 50% of the DV's when the new DVs become effective in July 2018.

mg pantothenic acid, > 150 µg biotin, > 200 µg folate, > 2,500 IU vitamin A, > 15 IU vitamin E, > 200 IU vitamin D, and 40 µg vitamin K. *See* **Attachment 4**. The analytical report demonstrates the 12 vitamin blend complies with each of the limits established for vitamins in the product.

2.4 Manufacturing Process

The nutrient blend is manufactured from edible portions of fruits and vegetables following good manufacturing practices for food (21 CFR Part 110 and 21 CFR Part 117, Subpart B, when it becomes effective). All the starting materials have a long history of safe consumption. Table 4 provides examples of the fruit or vegetable that can be used as a source for a particular vitamin.

Table 4. Fruits and Vegetables Sources of Nutrients

Nutrient	Example of Fruit/Vegetable Used as the Source (Edible Portions Only)
Vitamin A (beta-carotene)	Sweet potato, cantaloupe, carrot, cherry, tomato
Vitamin C	Kakaku plum, black currant, broccoli, orange, beet, apple, strawberry, blueberry, cranberry
Vitamin D	Maitake mushroom
Vitamin E	Mustard greens, Swiss chard, spinach, kale
Vitamin K_1	Kale, spinach
Vitamin B_1	Sunflower seeds
Vitamin B_2	Sesame seeds or spinach
Vitamin B_3	Crimini mushrooms
Vitamin B_5	Shiitake mushroom, avocado
Vitamin B_6	Bell pepper, spinach, broccoli
Vitamin B_7	Swiss chard
Vitamin B_9 (folate)	Spinach, papaya

NutriFusion uses various conventional extraction methods to extract the vitamins and will select the method that is most effective depending on the fruit or vegetable matrix and the nutrient(s) that are extracted. The solvents most commonly used are water, ethanol or critical CO_2. Solid phase extraction is also used. The solvent extraction process can be described as follows:

1. Food grade fruits and vegetables are harvested, sorted, garbled (i.e., the desired part of the plant (the edible portion) is separated from other parts of the plant), and dried.
2. The dried plants are prepared for extraction by grinding into a fine powder to maximize the surface area available for extraction.
3. An Individual dried plant, or a blend of dried fruits and vegetables with common soluble vitamins, will then be immersed in solvents commonly used in food processing (e.g., water, alcohol, or critical CO_2).
4. The extraction process can take several days.
5. Once the extraction process is complete the solvent and plant solids are separated by centrifugation.
6. The liquid portion is decanted and stored in a container for later processing (see step 9).

7. The extraction can be repeated with the solid materials separated by centrifugation as needed (for example, the plant material could first be exposed to an aqueous extraction and after centrifugation, the remaining solids could then be subjected to an ethanol extraction to isolate those remaining vitamins that are soluble in ethanol but not in water).
8. The solid material recovered after centrifugation (i.e., the spent plant material) can be freeze dried and used as a carrier for the extracted nutrients, or diverted for other uses such as animal feed.
9. The stored liquid nutrients are then freeze dried and encapsulated with food grade GRAS ingredients to protect them from oxidation.
10. The encapsulated vitamin extracts are blended with the freeze-dried spent plant materials for standardization

The solid phase extraction can be described as follows:

1. Food grade fruits and vegetables are harvested, sorted, garbled, and dried.
2. The dried plants are prepared for extraction by grinding into a fine powder to maximize the surface area available for extraction.
3. An individual dried plant, or a blend of dried fruits and vegetables with common soluble vitamins will be blended together, will then be immersed in solvents commonly used in food processing (e.g., water, alcohol, or critical CO_2).
4. The solution will then pass through a single-use cartridge containing a chromatographic sorbent (e.g., silica particles that have been functionalized on their surface) using appropriate food grade food contact substances that are authorized by FDA for this type of use;
5. Another common food-grade solvent will be used as elute to remove the nutrients retained on the stationary phase.
6. The collected liquid will be stored in a container.
7. The extracted vitamins are removed from the container, freeze dried, and then encapsulated with food grade GRAS ingredients to protect the vitamins from oxidation.
8. The encapsulated vitamins are blended onto the spent freeze-dried plant material into a standardized blend.

2.5 Specifications

Table 5. Heavy Metal Specification

Heavy Metal	Limit
Arsenic	1.0 ppm
Cadmium	0.5 ppm
Lead	1.5 ppm
Mercury	0.2 ppm
Bismuth	0.2 ppm
Antimony	0.2 ppm

Table 6. Microbiology Specification	
Item	**Limit**
Total Aerobic Plate Count	≤ 3,000 CFU/g
Total Yeast/Mold Count	≤ 300 CFU/g
E. coli Count	Negative
Salmonella Count	Negative
Coliforms	≤ 10 CFU/g
Staphylococcus Aureus	Negative

We are attaching the analytical reports on four different production lots (i.e., NF-216, NF-316, NF-416, and NF-661) that demonstrate the products meet the heavy metal and microbiological specifications. Three of these production batches are on a six vitamin blend while the fourth is on a 12 vitamin blend. *See* **Attachments 5, 6, 7, and 8**. The attached analytical reports also report levels for organophosphorous, organochlorine, residual solvents, synthetic preservatives, glycol, and polyether polyols. The attached data demonstrate the four production lots contain non-detectable levels of each of these other contaminants and comply with the specifications.

2.6 Stability Data

NutriFusion created this innovative source of vitamins extracted from fruits and vegetables and is merely a supplier of these vitamins to companies that will then formulated the vitamins into various foods. As the supplier of the ingredient, NutriFusion works closely with its customers and tailors the vitamin blend as requested. NutriFusion provides assurance the vitamins are considered GRAS when used in foods and customer ultimately is responsible for deciding the level of the vitamin blend that will be added as well as the data supporting any claims that are made on their finished product throughout the shelf life of the product. The customer, therefore, has the responsibility to determine the level of overages, if any, which will need to be added to the product at time of formulation to meet the level of vitamins declared on the label throughout the shelf life of the product.

NutriFusion, nonetheless, is aware of customers that have formulated its vitamin blend into foods and dietary supplements and has collected products from commerce to evaluate the level of its vitamins that can be detected in these commercially available foods. For the stability data, NutriFusion analyzed a dietary supplement containing the NutriFusion blend. NutriFusion supplied this dietary supplement company with only one shipment of its blended vitamins in 2013. NutriFusion collected a commercially available sample of the dietary supplement from commerce in 2015 and analyzed the product for the levels of vitamins in the product. The analytical report can be found in **Attachment 9**. The data demonstrate the vitamins from the NutriFusion blend used to formulate the dietary supplement remained stable throughout this three year period of time. We note the manufacturer of this dietary supplement has established an expiration date of May 2017, demonstrating the manufacturer expects the vitamins to remain stable for at least four years.

NutriFusion also wanted to assess the stability of its vitamin blend in a food matrix. NutriFusion supplies a pasta company with one its nutrient blends. The pasta goes through various stages and exposures to heat from the time of manufacture until it is consumed. The pasta company will formulate the flour, vitamin blend, and other ingredients into dough, extrude the pasta in the proper shape, and then subject the extruded pasta to a drying oven to dry the pasta to the desired moisture level. The pasta will be transported and held at retail and by consumers at ambient conditions. When preparing the pasta, the labeled directions for use instruct the consumers to cook the pasta in boiling water for 11-13 minutes.

NutriFusion collected from commerce a 10-month old pasta made by a pasta company. NutriFusion instructed the laboratory to prepare the pasta according to the labeled directions for use and to analyze the cooked pasta to assess the level of vitamins in the product compared to those declared on the label. The laboratory results and copy of the declared nutrient values are found in **Attachment 10** and summarized in the table below. As the data indicate, the great majority of the nutrients in the cooked 10-month old pasta are in line with the declared nutritional claims.

Table 7: Stability of Vitamin Blend in Cooked Pasta

Vitamin	Label Declared Value (%DV)	Analytical Value #1 (% DV)	Analytical Value #2 (% DV)	Analytical Value #3 (% DV)
Vitamin A	20	23	26	24
Vitamin C	25	26	24	25
Vitamin D	20	26	28	24
Vitamin E	25	27	29	26
Vitamin B_1	40	44	42	43
Vitamin B_6	25	30	31	29

2.7 Detailed Information on Intended Use

The NutriFusion product is intended for use by infants from six to 12 months of age, toddlers and young children from one to four, and the general population four and over, when used as a substitute for commercially available vitamin blends, most of which are synthetic. For infants from six to 12 months and children from one to four, the NutriFusion product will be used in baby foods purees (e.g., fruits, veggies, dinners, dairy), toddler meals, and other foods specifically formulated and positioned for children under four. Many of the uses of the NutriFusion products will be substitutional with the vitamins being used as substitutes for currently authorized commercially available vitamins.

Table 8. Food Additive Regulations Reference for Vitamins Uses in Foods

Nutrient	CFR Citation	Limitations
Vitamin A	21 CFR §184.1930 (“Vitamin A”) 21 CFR §184.1930 (Beta-carotene)	There are no limits other than current good manufacturing practices (cGMPs). Beta carotene is authorized with no limits other than GMPs in dairy product analogs, fats and oils, and processed fruits and fruit juices.

Table 8. Food Additive Regulations Reference for Vitamins Uses in Foods		
Nutrient	**CFR Citation**	**Limitations**
Vitamin C	21 CFR §182.3013 (“Ascorbic acid”)	There are no limits other than cGMPs.
Vitamin D	21 CFR §184.1950 (“Vitamin D”); 21 CFR §172.379 (“Vitamin D_2”); 21 CFR §172.380 (“Vitamin D_3”).	Affirmed as GRAS by FDA for certain food categories at limited levels) For example, • Breakfast cereals, 350 IU/100g • Grain products and pastas, 90 IU/100g • Milk products, 89 IU/100g
Vitamin E	21 CFR §182.8890 (“Tocopherols”)	There are no limits other than cGMPs.
Vitamin B_1	21 CFR §184.1875 (“Thiamine hydrochloride.”) and 21 CFR 184.1878 (“Thiamine mononitrate.”)	There are no limits other than cGMPs.
Vitamin B_2	21 CFR §184.1695 (“Riboflavin”)	There are no limits other than cGMPs.
Vitamin B_3	21 CFR §184.1530 (“Niacin”)	There are no limits other than cGMPs.
Vitamin B_5	21 CFR §184.1212 (“Calcium pantothenate”)	There are no limits other than cGMPs.
Vitamin B_6	21 CFR §184.1676 (“Pyridoxine hydrochloride”)	The ingredient is used in the following foods at levels not to exceed current good manufacturing practice: baked goods as defined in § 170.3(n)(1) of this chapter; nonalcoholic beverages and beverage bases as defined in § 170.3(n)(3) of this chapter; breakfast cereals as defined in § 170.3(n)(4) of this chapter; dairy product analogs as defined in § 170.3(n)(10) of this chapter; meat products as defined in § 170.3(n)(29) of this chapter; milk products as defined in § 170.3(n)(31) of this chapter; plant protein products as defined in § 170.3(n)(33) of this chapter; and snack foods as defined in § 170.3(n)(37) of this chapter.
Vitamin B_7	21 CFR §182.8159 (“Biotin”)	There are no limits other than cGMPs.
Vitamin B_9	21 CFR §172.345 (“Folic acid (folacin)”)	Permitted for use by FDA in various food categories, for example, folic acid may be added to foods subject to a standard of identity established under section 401 of the Federal Food, Drug, and Cosmetic Act when the standard of identity specifically provides for the addition of folic acid

In its recently finalized regulation for the nutrition labeling of foods, FDA established new reference daily intakes for children and adults greater than four, infants up to one year, and children between one and three. 3/ The table below identifies the RDIs established by FDA for each of these age groups.

3/ 81 Fed. Reg. 33742, 33982 (Mary 27, 2016).

Table 9. RDI Among Different Age Groups			
Nutrient	**Infants (up to 12 months)**	**Child (1 through 3 years)**	**Adult (4 years and older)**
Vitamin A	500 RAE µg/d (6000 µg/d b-carotene)	300 RAE µg/d (3600 µg/d b-carotene)	900 RAE µg/d (10,800 µg/d b-carotene)
Vitamin C	50 mg/d	15 mg/d	90 mg/d
Vitamin D	10 µg/d	15 µg/d	20 µg /d
Vitamin E	5 mg/d†	6 mg/d†	15 mg/d†
Vitamin K_1	2.5 µg/d	30 µg/d	120 µg/d
Vitamin B_1	0.3 mg/d	0.5 mg/d	1.2 mg/d
Vitamin B_2	0.4 mg/d	0.5 mg/d	1.3 mg/d
Vitamin B_3	4 mg/d	6 mg/d	16 mg/d
Vitamin B_5	1.8 mg/d	2 mg/d	5 mg/d
Vitamin B_6	0.3 mg/d	0.5 mg/d	1.7 mg/d
Vitamin B_7	6 µg/d	8 µg/d	30 µg/d
Vitamin B_9	80 µg/d	150 µg/d	400 µg/d
† as d-alpha-tocopherols			

3.0 Dietary Exposure

The intended use of the NutriFusion product will largely be a substitutional use with the vitamins replacing currently authorized commercially available vitamins and would not increase dietary exposure to those vitamins. In other instances, there are safety data supporting the GRAS status of these vitamins that are naturally extracted from commonly consumed fruits and vegetables. According to the Scientific Report of the 2015 Dietary Guideline Advisory Committee and reviews conducted by the Institute of Medicine (IOM), the current 90th percentile intake of common vitamins from foods and beverages among children 1 through 3 years old and all individuals four and over can be summarized with the table below. 4/

Table 10. Common Vitamins 90th Percentile Intake 5/

Nutrient	90th Percentile Intake (≥4) 6/	90th Percentile Intake (1 - 3)
Vitamin A (beta-carotene)	13,584 µg/day	10,428 µg/d
Vitamin C	177.1 mg/day	164.7 mg/d
Vitamin D	10.8 µg/day	12.6 µg/d
Vitamin E	13.7 mg/day	6.2 mg/d
Vitamin K_1	182.0 µg/day	61.2 µg/d
Vitamin B_1	2.96 mg/day	1.6 mg/d
Vitamin B_2	3.85 mg/day	2.61 mg/d
Vitamin B_3	46.2 mg/day	19.7 mg/d
Vitamin B_5	10 mg/day*	4 mg/day*
Vitamin B_6	3.78 mg/day	1.82 mg/d
Vitamin B_7	60 µg/day*	16 µg/day*
Vitamin B_9 (folate)	959 µg/day	540 µg/d
*Based on IOM adequate intakes for vitamin B_5 and vitamin B_7 for adults (*See* **Attachment 12**)		

4.0 Self-limiting Levels of Use

The use of NutriFusion product is not self-limiting and will be controlled closely through the product formulation.

4/ *See* **Attachment 11**.
5/ The 90th percentile intake info for vitamin B_5 or vitamin B_7 is based on the assumption that 90th percentile intake is generally two times of the average intake.
6/ We adopt the highest 90th percentile intake data reported for different age groups. Also, when there are different 90th percentile intake values reported for male and female, we adopt the higher number for the purpose of conservatism.

5.0 Experience Based on Common Use in Food before 1958

The NutriFusion blend was not marketed prior to 1958. The fruit and vegetables used to extract the vitamins, however, have an extensive history of use prior to 1958. Infants, toddlers, young children, and humans four and over have been consuming the fruit and vegetables used as the sources of the vitamins in most instances, for over a millennia. Moreover, in general, the quantity of whole fruit and vegetable used to extract the vitamins is comparable to typical consumption levels of that fruit or vegetable. The widespread consumption of these fruit and vegetables provides compelling support that the fruit and vegetables used as the source of the vitamins are safe for consumption and are not expected to have contaminants or constituents that would present a health or safety issue at typical consumption levels.

6.0 GRAS Narrative

6.1 Overview

The fruit and vegetables used for the extraction have a long safe consumption history and their GRAS status is well-established. NutriFusion uses process methods that are commonly used such as solvent extraction and solid phase extraction in food processing to extract and isolate the vitamins commonly found in various fruits and vegetables. In many instances, the quantity of the fruit or vegetable that is needed to deliver 100 percent of the RDI is comparable to the quantity of the fruit or vegetable consumed in a normal eating occasion. Table 11 identifies the fruit or vegetable that could be used as a source for various vitamins, the RDI for the nutrient among adults, and the quantity of the whole fruit or vegetable that, if consumed, would provide 100 percent of the RDI.

Table 11. Nutrients Content of Source Materials Comparison

Nutrient	Source	RDI	Nutrients of Fruits/Vegetables	Comparable Quantity of Fruit/Vegetable
Beta-carotene	Sweet potato	10,800 µg beta carotene	30,972 µg beta carotene per cup (328 g) of sweet potato 7/	0.35 cup sweet potato
Vitamin C	Black currant	90 mg	202.7 mg per cup (112 g) 8/	0.44 cup black currant
Vitamin D	Maitake mushroom	20 µg	19.7 µg vitamin D per cup (70 g) 9/	1.02 cup Maitake mushroom
Vitamin E	Spinach	15 mg	6.9 mg per bunch (340 g) 10/	2.17 bunches of spinach
Vitamin K_1	Kale	120 µg	112.8 µg per cup (16 g) 11/	1.06 cup kale
Vitamin B_1	Sunflower seeds	1.2 mg	0.681 mg per cup (46 g) 12/	1.76 cups of sunflower seeds
Vitamin B_2	Spinach	1.3 mg	0.643 mg per bunch (340 g) 13/	2 bunches of spinach
Vitamin B_3	Crimini mushrooms	16 mg	3.31 mg per cup (87 g) 14/	4.8 cups of Crimini mushrooms
Vitamin B_5	Shiitake mushroom	5 mg	5.21 mg per cup (145 g) 15/	0.96 cups of Shiitake mushrooms
Vitamin B_6	Spinach	1.7 mg	0.663 mg per bunch (340 g) 16/	2.56 bunches of spinach

7/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 11510 "Sweet potato, cooked, boiled, without skin."
8/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 09083 "Currants, european black, raw."
9/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 11993 "Mushrooms, Maitake, raw."
10/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 11457 "Spinach, raw."
11/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 11233 "Kale, raw."
12/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 12036 "Seeds, sunflower seed kernels, dried."
13/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 11457 "Spinach, raw."
14/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 11266 "Mushrooms, brown, italian, or crimini, raw."
15/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 11798 "Mushrooms, shiitake, cooked, with salt."
16/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 11457 "Spinach, raw."

Table 11. Nutrients Content of Source Materials Comparison				
Nutrient	**Source**	**RDI**	**Nutrients of Fruits/Vegetables**	**Comparable Quantity of Fruit/Vegetable**
Vitamin B_7	Swiss chard	30 µg	10.5 µg per cup 17/	2.86 cups of Swiss chard
Vitamin B_9	Spinach	400 µg	660 µg per bunch (340 g) 18/	0.61 bunch of spinach
† as d-alpha-tocopherols				

According to 21 CFR §170.30(d), "[a] food of natural biological origin that has been widely consumed for its nutrient properties . . . without known detrimental effects, which is subject only to conventional processing as practiced prior to January 1, 1958, and for which no known safety hazard exists, will ordinarily be regarded as GRAS." As the above table indicates, the intended use of the NutriFusion product is roughly equivalent in all instances with the consumption of five or more servings of fruits and vegetables per day – the existing dietary recommendation. We, therefore, would not expect the NutriFusion product to contain levels of any unintended soluble constituents from the plant that would present a health or safety concern. We recognize the manufacturing process will result in the extraction of the vitamins as well as any other soluble constituents that may be present in the plant material. Even if there are incidental constituents concentrated in the finished NutriFusion products along with the vitamins, the level of potential dietary intake of these constituents would be comparable or less than what a consumer would otherwise be exposed to when consuming a comparable level of the plant material used to extract the vitamin. For example, it is expected the process used to extract beta-carotene from sweet potatoes would extract other naturally occurring soluble phytochemicals and other nutrients in the sweet potato. The level of these sweet potato constituents, however, cannot be greater (and likely could be less if they are not easily soluble) found in less than 1/2 cup of sweet potatoes used to reach 100 percent of the DV for beta-carotene.

We also recognize it is possible the manufacturing process could extract the constituent in the fruit or vegetable that may be linked to an allergy or sensitivity. Allergic reactions are triggered by proteins while sensitivities can be triggered by other constituents in a food. Some of the plant source materials of the NutriFusion products such as sunflower seeds, avocado, and spinach are recognized in the literature as triggering allergic reactions and categorized as "less common allergenic foods." 19/ In addition, individuals with oral allergy syndrome are usually sensitized to one or more pollens and could react to proteins in specific fresh fruits and vegetables that cross-react with the pollen allergens. 20/ We also recognize some consumers experience reactions that can be triggered by constituents in certain fruits and vegetables other than proteins.

As reported in Table 2, the NutriFusion blend can contain over four percent protein and it is possible one of the allergenic proteins found in the source plant could be present in the

17/ *See* "Common Ground Farm – Swiss Chard," *available at*: http://cgofarm.com/all-articles/11-cg-news/60-swiss-chard.
18/ *See* USDA National Nutrient Database for Standard Reference Release 28: Basic Report 11457 "Spinach, raw."
19/ Susan L. Hefle, Julie A. Nordlee, and Steve L. Taylor, *Critical Reviews in Food Science and Nutrition,* 36(S):S69—S89 (1996).
20/ Taylor, Steve L., and Susan L. Hefle. *Food allergies and other food sensitivities* Food Technology 55.9 (2001): 68-84.

extracted vitamins. In addition, the vitamins are mixed with the spent fruit or vegetable material that also can be present in the final blend. To the extent a consumer has an allergy or sensitivity to one of the fruits or vegetables used as the source materials, final blend could contain that particular substance. Any concerns with allergies and sensitivities are handled through labeling. The labels of the foods bearing the NutriFusion blend will identify each fruit or vegetable used in the extraction process. Individuals with a food allergy or sensitivity to one of the fruits or vegetables used in the extraction process, therefore, will be able to identify the possible presence of the plant material and can avoid the product.

We, therefore, view the long history of consumption of fruits and vegetables and the use of conventional food processing extractions methods as supporting the GRAS status of the NutriFusion blend. The GRAS status is further demonstrated by a review of the scientific literature. For example, several authoritative bodies including the IOM and the European Food Safety Authority (EFSA) have conducted comprehensive reviews of the safety data related to these vitamins. When comparing the current 90th percentile intake of various vitamins to the safety levels identified by various expert groups, the intended use of the NutriFusion product can be reasonably expected to be safe.

6.2 Safety Assessment

6.2.1 Beta-carotene (Provitamin A_1)

Vitamin A is important for normal vision, gene expression, reproduction, embryonic development, growth, and immune function. 21/ Beta-carotene is the most abundant form of provitamin A in fruits and vegetables**.** It is effectively metabolized by the human body into vitamin A when digested. The Scientific Report of the 2015 Dietary Guidelines Advisory Committee concluded vitamin A is underconsumed among the U.S. population ages 2 years and older.

Beta-carotene has been considered virtually nontoxic because humans tolerate high dietary dosages without apparent harm. 22/ Toxicity studies in animals have shown that beta-carotene is not carcinogenic, mutagenic, embryotoxic, or teratogenic. 23/ While there are studies associating low dietary and/or plasma level of carotenoids with higher incidences of certain cancers, intakes as high as 180 mg per day have been given to humans without adverse effects other than changes in skin color. 24/

Vitamin A is affirmed as GRAS under 21 CFR §184.1930 (“Vitamin A”), there are no limits on its use levels other than cGMP and beta-carotene is affirmed as GRAS under 21 CFR §184.1245 for use as a nutrient supplement with no limits other than GMPs.

21/ Institute of Medicine. Food and Nutrition Board. *DRI, Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc*. National Academy Press, 2001.
22/ *See* Bendich, Adrianne. "The safety of β-carotene." *Nutrition and cancer* 11.4 (1988): 207-214.
23/ *See id*.
24/ *See* Mathews-Roth MM. 1986. Beta-carotene therapy for erythropoietic protoporphyria and other photosensitivity diseases. Biochemie. 68:875–884.

- **Institute of Medicine (IOM 2000) 25/**

The IOM found no adverse effects other than carotenodermia from the consumption of beta-carotene in foods. Carotenodermia is a harmless biological effect of high carotenoid intake and is characterized by a yellowish discoloration of the skin. The IOM also noted the possible increase in lung cancer incident among smokers taking high-dose supplements of beta-carotene (i.e., 20 mg/day or greater). However, beta-carotene from supplements has much higher bioavailability than beta-carotene from foods. As such, the IOM concluded that while 20 mg/day of beta-carotene in the form of a supplement is sufficient to raise blood concentrations to a range reported to be associated with an increase in lung cancer risk, the same amount of beta-carotene in foods is not. Accordingly, the IOM reasoned the existing recommendation for consumption of five or more servings of fruits and vegetables per day is supported because this would provide 3 to 6 mg/day of beta-carotene. The IOM did not set a tolerable upper intake level (UL) for beta-carotene and stated that the concentrations of beta-carotene associated with possible adverse effects on lung cancer are well beyond the concentrations achieved via dietary intake.

- **EFSA (2012) 26/**

EFSA examined the possible link between the ingestion of beta-carotenoid and lung cancer in 2012. EFSA noted that epidemiological studies reported no increased lung cancer incidence in heavy smokers at supplemental dose levels of beta-carotene varying from 6 – 15 mg/day for about 5 up to 7 years. As such, the EFSA expert panel concluded that exposure to beta-carotene from its use as food additive and as food supplement at a level below 15 mg/day do not raise any safety concerns about adverse health effects in the general population, including heavy smokers.

Vitamin A is GRAS with no limits other than GMPs and beta-carotene is GRAS when used as a nutrient supplement with no limits other than GMPs. Nutrient supplements are defined as "substances that are necessary for the body's nutrional and metabolic processes. 27 When beta-carotene is added as a nutrient supplement to foods there are no restrictions on its use other than GMPs. The NutriFusion products provide beta-carotene that will be used as a substitute to the conventionally available sources of beta-carotene and would not increase intake of either beta-carotene from conventional sources or of other sources of vitamin A. Based on the safety reviews conducted by the IOM and EFSA, even conservatively assuming the intended use of beta-carotene in the NutriFusion product will replace all the existing uses in all food applications, the 90th percentile dietary intake of 13,584 µg/day beta-carotene can reasonably be considered as safe.

25/ Institute of Medicine. Food and Nutrition Board. *DRI, Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids*. National Academy Press, 2000.
26/ EFSA Journal 2012;10(12):2953.
27 21 C.F.R. § 170.3(o)(20).

6.2.2 Vitamin C

Vitamin C, also known as ascorbic acid, is a water-soluble vitamin. The biological functions of vitamin C are based on its ability to provide reducing equivalents for a variety of biochemical reactions. Because of its ability to donate electrons, vitamin C is also an effective anti-oxidant. The Scientific Report of the 2015 Dietary Guidelines Advisory Committee concluded vitamin C is underconsumed among the U.S. population ages 2 years and older. Vitamin C has very low toxicity and is not believed to cause serious adverse effects even at high intakes. 28/ There is no scientific evidence suggesting that vitamin C is carcinogenic or teratogenic, or that it causes adverse reproductive effects. 29/ The adverse effects have been reported primarily after very large doses (greater than 3 g/day) and these effects include symptoms such as diarrhea and other gastrointestinal disturbances, increased oxalate excretion, and kidney stone formation. 30/

Vitamin C is listed as GRAS under 21 CFR §182.3013 ("Ascorbic acid"), there are no limits other than cGMP.

- **IOM (2000) 31/**

After reviewing extensive safety data related to vitamin C, the IOM selected osmotic diarrhea and related gastrointestinal disturbances as the critical endpoints on which to base a UL. Specifically, the UL for children 1-3 years old is set at 400 mg/day and the UL for adults is set at 2,000 mg/day. The IOM also noted that the *in vivo* data did not show a causal relationship between excess vitamin C intake by apparently healthy individuals and other adverse effects. Overall, the IOM found the risk of adverse effects resulting from excess intake of vitamin C from food and supplements to be very low even at the highest intake levels.

- **EFSA (2004) 32/**

EFSA reviewed the vitamin C safety data in 2004. The agency noted that despite the extensive use of high doses of vitamin C in some vitamin supplements, there have been few controlled studies that specifically investigated the adverse effects and the acute gastrointestinal intolerance is the mostly clearly defined effect. EFSA concluded that the available human data suggested that supplemental daily doses of vitamin C up to about 1 g, in addition to normal dietary intakes, are not associated with adverse gastrointestinal effects.

Vitamin C is affirmed with GRAS with no limitations other than GMPs. The vitamin C extracted from fruits and vegetables is a substitutional use and would not increase vitamin C dietary exposure. Based on the safety reviews conducted by the IOM and EFSA, even very conservatively assuming the intended use of vitamin C in the NutriFusion product will replace all the existing uses, the 90th percentile dietary intake of 177.1 mg/day can reasonably be considered as safe.

28/ *See supra* note 25.
29/ *See id*.
30/ *See id*.
31/ *See id*.
32/ EFSA Journal (2004) 59, 1-21.

6.2.3 Vitamin D

The Scientific Report of the 2015 Dietary Guidelines Advisory Committee concluded vitamin D is underconsumed among the U.S. population ages 2 years and older. While vitamin D is an essential nutrient for humans, excessive intake may lead to intoxication. Vitamin D intoxication is generally characterized by increased serum 25(OH)D levels and resulting in hypercalcemia, hypercalciuria, and possible soft tissue calcification and renal and cardiovascular damage. In most adults, daily intake in excess of 50,000 IU (1.25 mg) is needed to produce toxicity. 33/ However, some infants and individuals with hypercalcemia are more sensitive to vitamin D and daily intake for these individuals should not exceed 2,000 IU (50 µg). 34/

Vitamin D is permitted for use in foods under various food additive and GRAS regulations including 21 CFR §184.1950 ("Vitamin D"), 21 CFR §172.379 ("Vitamin D_2"), and 21 CFR §172.380 ("Vitamin D_3"). There are limitations on its use levels in various foods. For example, vitamin D can be added to grain products and pastas at levels not higher than 90 IU/100 g and milk products not higher than 89 IU/100 g.

- **IOM (2011) 35/**

The IOM noted that despite the limitations of the evidence, there is a notable connection between different health indicators for adverse outcomes and serum 25OHD levels. The IOM set ULs for various age groups based on safety data associated with the onset of hypercalcemia and related toxicity. Specifically, the ULs for infants 6 to 12 months of age and children 1 to 3 years old are 38 µg/day and 63 µg/day, respectively. The UL for adults is 100 µg/day.

- **EFSA (2012) 36/**

Based on the safety data EFSA reviewed in 2012, the expert panel selected hypercalcemia as the indicator for toxicity. In two studies in men, intakes between 234 and 275 µg/day were not associated with hypercalcemia, and a no observed adverse effect level (NOAEL) of 250 µg/day was established. The UL for adults including pregnant and lactating women was set at 100 µg/day. A UL of 50 µg/day was proposed for children aged 1-10 years and for infants, an UL of 25 µg/day was proposed.

EFSA, in its more recent review, set slightly lower ULs than those established by the IOM of 25 µg/day for infants, 50 µg/day for children 1-10 and 100 µg/day for adults (EFSA and IOM set the same UL for adults). The vitamin D in the NutriFusion blend is sourced from plants and is exposing humans to similar levels of vitamin D that would come from consumption of the plant itself. Based on the safety reviews conducted by IOM and EFSA, even assuming the intended use of vitamin D in the NutriFusion product will replace all the existing uses, the 90th percentile dietary intake of 10.8 µg/day for adults and children over four is well below the UL of 50 µg/day

33/ Gaby, Suzanne K. Vitamin intake and health: a scientific review. CRC Press, 1990.
34/ *See id*.
35/ Ross, A. Catharine, et al., eds. *Dietary reference intakes for calcium and vitamin D*. National Academies Press, 2011.
36/ EFSA Journal 2012;10(7):2813.

for children 1 to 10 and 100 µg/day for adults established by EFSA. Any incremental intake in exposure to the use of vitamin D that could result in its addition to foods not currently covered by one of the existing food additive or GRAS regulations could not reasonably be expected to a five-fold increase in an exposure at the 90th percentile that would be needed to reach the UL for children 1 to 10 or the almost 10-fold exposure intake that would be needed to reach the UL for adults. The use of the NutriFusion as a vitamin D source, therefore, can reasonably be considered as safe.

6.2.4 Vitamin E

Vitamin E functions primarily as an antioxidant that prevents the propagation of lipid peroxidation. The Scientific Report of the 2015 Dietary Guidelines Advisory Committee concluded vitamin E is underconsumed among the U.S. population ages 2 years and older. There is no evidence of adverse effects from the consumption of vitamin E in foods. Animal studies show that vitamin E is not mutagenic, carcinogenic, or teratogenic.

Vitamin E is listed as GRAS under 21 CFR §182.8890 ("Tocopherols,") there are no limitations on use levels other than cGMPs.

- **IOM (2000) 37/**

The IOM reviewed all data relevant to vitamin E safety and selected hemorrhagic effects as the critical endpoint on which to base the UL for vitamin E for adults. However, the IOM noted the human data fail to demonstrate consistently a causal association between excess vitamin E intake in normal, apparently healthy individuals and any adverse health outcome. The risk of adverse effects resulting from excess intake of α-tocopherols from food and supplements appears to be very low at the highest intakes. The IOM established a UL for adult at 1,000 mg/day and a UL for children 1-3 years at 200 mg/day.

- **European Commission, Scientific Committee on Food (EC SCF 2003) 38/**

The EC SCF reviewed all the evidence and found no adverse effects for oral vitamin E in humans. The expert panel decided that the critical effect is on blood clotting and that the study by Meydani et al. (1998) provided the best basis for an evaluation of the tolerable upper intake level. 39/ The NOAEL established in this study was 540 mg/day. The UL for vitamin E was established as 270 mg/day for adults after applying an uncertainty factor of 2. The UL for children age from 1 to 3 was established as 100 mg/day.

Vitamin E from conventional sources is currently considered GRAS with no limitations other than GMPs. The vitamin E extracted from fruits and vegetables is a substitutional use and would not increase vitamin E dietary exposure. Based on the safety reviews conducted by IOM

37/ *See supra* note 25.
38/ Scientific Committee on Food of European Commission. "Opinion of the Scientific Committee on Food on the tolerable upper intake level of vitamin E."*Bruxelles: European Commission* (2003).
39/ Meydani, Simin Nikbin, et al. "Assessment of the safety of supplementation with different amounts of vitamin E in healthy older adults." *The American journal of clinical nutrition* 68.2 (1998): 311-318.

and EFSA, even assuming the intended use of vitamin E in the NutriFusion product will replace all the existing uses, the 90th percentile dietary intake of 13.7 mg can reasonably be considered as safe.

6.2.5 Vitamin K_1

Vitamin K functions as a coenzyme during the synthesis of the biologically active form of several proteins in blood coagulation and bone metabolism. Vitamin K_1, also known as phylloquinone is synthesized by plants, and is found in highest amounts in green leafy vegetables because it is directly involved in photosynthesis. No toxicity has been observed with high doses of vitamin K_1 intake.

- **IOM (2001) 40/**

The IOM found no adverse effects associated with vitamin K consumption from food or supplements. Therefore, a quantitative risk assessment cannot be performed and a UL cannot be derived for vitamin K. After a search of the literature, the IOM found no evidence of toxicity associated with the intake of vitamin K_1. While the IOM noted that there was a single study suggesting an association between intramuscularly administered vitamin K and childhood cancer, the finding has limited relevance to ULs based on oral intake. 41/ Further, evidence from other population studies all failed to confirm the association between vitamin K and cancer. In all, the IOM concluded that no adverse effects have been reported with high intakes of vitamin K.

- **EFSA (2006) 42/**

EFSA recognized that in human studies of limited numbers, there was no evidence of adverse effects associated with supplementary intakes of vitamin K_1 in the form of phylloquinone of up to 10 mg/day for limited periods of time. 43/ This is also consistent with experimental animal studies in which no adverse effects were observed after daily administration of extremely high doses (2000 mg/kg body weight) for 30 days.

Based on the safety reviews conducted by IOM and EFSA, even conservatively assuming the intended use of vitamin K_1 in the NutriFusion product will replace all the existing uses, the 90th percentile dietary intake of 182 µg (0.18 mg) can reasonably be considered as safe. The 0.18 mg/day is much lower than the 10 mg/day intake level identified by EFSA as not causing any adverse effects in humans. The safety of the vitamin K found in the NutriFusion blend is further supported by the extensive history of consumption of leafy green vegetables. The National Institute of Health Office of Dietary Supplements recognizes “phylloquinone [the specific vitamin K in the NutritFusion products] is present primarily in green leafy vegetables and is the main

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40/ *See supra* note 21.
41/ Golding, Jean, et al. "Childhood cancer, intramuscular vitamin K, and pethidine given during labour." *Bmj* 305.6849 (1992): 341-346.
42/ Scientific Committee on Food, European Food Safety Authority. “Tolerable Upper Intake Levels for Vitamins and Minerals.” (2006).
43/ Craciun, A. M., et al. "Improved bone metabolism in female elite athletes after vitamin K supplementation." International journal of sports medicine 19.07 (1998): 479-484.

dietary form of vitamin K."44 The NutriFusion blend extracts from leafy green vegetables the same phylloquine that would be found in the vegetable itself. The extensive history of use of the source of the vitamin K combined by the expert reviews by the IOM and EFSA establish the safety of this source of vitamin K as a nutrient source to be added to food.

6.2.6 Vitamin B_1

Vitamin B_1 functions as a coenzyme in the metabolism of carbohydrates and amino acids. All living organisms use vitamin B_1 and humans must obtain this nutrient from the diet. Major food sources of vitamin B_1 include enriched, fortified, or whole-grain products such as bread and bread products, mixed foods whose main ingredient is grain, and ready-to-eat cereals. Oral thiamin, or vitamin B1, is virtually nontoxic and has been safely used as a dietary supplement for a long time.

Vitamin B1 is affirmed as GRAS under 21 CFR §184.1875 ("Thiamine hydrochloride") and 21 CFR 184.1878 ("Thiamine mononitrate"), there are no limitations on use levels other than cGMPs.

- **IOM (1998) 45/**

The IOM found that there were no reports available of adverse effects from the consumption of excessive vitamin B_1 by ingestion of food and dietary supplements. The IOM noted in its review that data are inadequate for a quantitative risk assessment and, as such, no UL can be derived for thiamin in the absence of known toxic effects by ingestion. The IOM also stated that supplements containing up to 50 mg/day of vitamin B_1 are widely available without prescription although the possible occurrence of adverse effects resulting from this level of intake have not been studied systematically.

- **EFSA (2006) 46/**

The EFSA expert panel reviewed the available safety data on vitamin B_1 and found that orally ingested vitamin B1 has a long safe history of use as a supplement without reported adverse effects. EFSA noted there are no reports of adverse effects of oral vitamin B_1, even at dosages of as high as several hundred milligrams a day.

Vitamin B_1 is affirmed as GRAS with no limitations other than GMPs. The vitamin B_1 extracted from fruits and vegetables is a substitutional use and would not increase vitamin B_1 dietary exposure. Based on the safety reviews conducted by IOM and EFSA, even assuming the intended use of vitamin B_1 in the NutriFusion product will replace all the existing uses, the 90th percentile dietary intake of 2.96 mg/day can reasonably be considered as safe.

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44 *Vitamin K Fact Sheet for Health Professionals,* National Institutes of Health Office of Dietary Supplements (Feb. 2016) (accessed Nov. 8 2016 at https://ods.od.nih.gov/factsheets/VitaminK-HealthProfessional/).

45/ *See* Institute of Medicine (US) Standing Committee on the Scientific Evaluation of Dietary Reference Intakes. Dietary reference intakes for thiamin, riboflavin, niacin, vitamin B_6, folate, vitamin B_{12}, pantothenic acid, biotin, and choline. National Academies Press (US), 1998.

46/ *See supra* note 42.

6.2.7 Vitamin B_2

Vitamin B_2 or riboflavin functions as a coenzyme in numerous redox reactions. Specifically, the active forms of riboflavin flavin mononucleotide and flavin adenine dinucleotide function as cofactors for a variety of flavoproteine enzyme reactions. Common foods and beverages that provide riboflavin include milk, cheese, eggs, leaf vegetables, mushrooms, and almonds. No adverse effects associated with vitamin B_2 consumption from food or supplements have been reported.

Vitamin B_2 is affirmed as GRAS under 21 CFR §184.1695 ("Riboflavin,") there are no limitations other than cGMPs.

- **IOM (1998) 47/**

The IOM reviewed extensive safety data on vitamin B_2 in 1998. Specially, in Zempleni et al. (1996), no adverse effects were reported in humans after single oral doses of up to 60 mg of supplemental vitamin B_2 and 11.6 mg of vitamin B_2 given intravenously. 48/ The IOM reasoned that the apparent lack of harm resulting from high oral doses of vitamin B_2 may be due to its limited solubility and limited capacity for absorption in the human gastrointestinal tract. At the end of the review, the IOM concluded that a UL cannot be derived based on the insufficient data on adverse effects from high vitamin B_2 intake.

- **EFSA (2006) 49/**

The EFSA expert panel found no study that has reported significant adverse effects in humans of excess vitamin B_2 intake. The absorption of riboflavin is also limited when administered in high doses. The expert panel noted that the current JECFA ADI value for riboflavin and riboflavin 5-phosphate of 0-0.5 mg/kg bw, which translates to 30 mg/day assuming an average adults weighs 60 kg.

Vitamin B_2 is GRAS with no limitations other than GMPs. The vitamin B_2 extracted from fruits and vegetables is a substitutional use and would not increase vitamin B_2 dietary exposure. Based on the safety reviews conducted by IOM and EFSA, even assuming the intended use of vitamin B_2 in the NutriFusion product will replace all the existing uses, the 90th percentile dietary intake of 3.85 mg/day can reasonably be considered as safe.

6.2.8 Vitamin B_3

Vitamin B_3 or niacin mainly functions as a coenzyme for the transfer of the hydride ion with numerous dehydrogenases. Common food sources for vitamin B_3 include mixed dishes rich in meat, fish or poultry as well as enriched and whole-grain breads, bread products, and cereals.

47/ *See supra* note 45.
48/ Zempleni, Janos, John R. Galloway, and Donald B. McCormick. "Pharmacokinetics of orally and intravenously administered riboflavin in healthy humans." The American journal of clinical nutrition 63.1 (1996): 54-66.
49/ *See supra* note 42.

There is no evidence of adverse effects from the consumption of naturally-occurring niacin in foods.

Vitamin B_3 is affirmed as GRAS under 21 CFR §184.1530 ("Niacin"), there are no limitations on the use levels other than cGMPs.

- **IOM (1998) 50/**

After reviewing extensive data related to vitamin B_3 safety, the IOM identified flushing as the adverse effect observed after excessive niacin intake and the most appropriate end-point on which to base a UL. The UL for children 1-3 years of old was set as 10 mg/day and the UL for adults was set at 35 mg/day.

Vitamin B_3 is GRAS with no limitations other than GMPs. The vitamin B_3 extracted from fruits and vegetables is a substitutional use and would not increase vitamin B_3 dietary exposure. Based on the safety reviews conducted by IOM, even assuming the intended use of vitamin B_3 in the NutriFusion product will replace all the existing uses, the 90th percentile dietary intake of 46.2 mg/day (all individuals above 4) and 19.7 mg/day (children 1 through 3), which are only slightly higher than the IOM ULs of 35 (adult) mg/day and 10 mg/day (children 1 through 3), can reasonably be considered as safe considering there is no evidence of adverse effects from the consumption of naturally-occurring niacin in foods and the fact that the use will not result in an increase in exposure over the currently authorized uses for niacin.

6.2.9 Vitamin B_5

Vitamin B_5 or pantothenic acid functions as a component of coenzyme A and phosphopantetheine, which are involved in fatty acid metabolism. Common food sources for vitamin B_5 include chicken, beef, potatoes, oat cereals, tomato products, broccoli, and whole grains. No adverse effects have been associated with high intakes of vitamin B_5.

Vitamin B_5 is affirmed as GRAS under 21 CFR §184.1212 ("Calcium pantothenate,") there are no limitations on its use levels other than cGMPs.

- **IOM (1998) 51/**

The IOM identified no reports of adverse effects of oral vitamin B_5 intake in humans or animals. As such, the IOM was not able to perform a quantitative risk assessment and a UL cannot be derived for vitamin B_5. The IOM also discussed studies in which no evidence of toxicity was associated with vitamin B_5. For example, Vaxman et al. (1996) noted no toxic effects of 200 mg to 900 mg/day of vitamin B_5 combined with ascorbic acid (1 to 3 g/day). 52/

50/ *See supra* note 45.
51/ *See id*.
52/ Vaxman, F., et al. "Can the wound healing process be improved by vitamin supplementation?" European surgical research 28.4 (1996): 306-314.

- **EFSA (2006) 53/**

In this 2006 EFSA review, no data have been reported on vitamin B_5 toxicity in humans. A Medline and Toxline search from 1966 on did not reveal any report on adverse effects after oral intake of vitamin B_5. The EFSA expert panel noted that vitamin B_5 may cause minor adverse gastrointestinal effects such as occasional diarrhea and water retention occurred only at very high intake levels (10-20 g/day). It was concluded that no LOAEL and NOAEL could be determined, and thus no numerical UL was established.

Vitamin B_5 is considered GRAS with no limitations other than GMPs. The vitamin B_5 extracted from fruits and vegetables is a substitutional use and would not increase vitamin B_5 dietary exposure. Based on the safety reviews conducted by IOM and EFSA, even assuming the intended use of vitamin B_5 in the NutriFusion product will replace all the existing uses, the 90th percentile dietary intake of 10 mg/day can reasonably be considered as safe.

6.2.10 Vitamin B_6

Vitamin B_6 functions as a coenzyme in the metabolism of amino acids, glycogen, and sphingoid bases. Common food sources of vitamin B_6 include highly fortified cereals and organ meats. No adverse effects have been associated with high intake of vitamin B_6 from food sources.

Vitamin B_6 is affirmed as GRAS under 21 CFR §184.1676 ("Pyridoxine hydrochloride.") The ingredient is legally permitted for use in the following foods at levels not to exceed current good manufacturing practice: baked goods as defined in § 170.3(n)(1) of this chapter; nonalcoholic beverages and beverage bases as defined in § 170.3(n)(3) of this chapter; breakfast cereals as defined in § 170.3(n)(4) of this chapter; dairy product analogs as defined in § 170.3(n)(10) of this chapter; meat products as defined in § 170.3(n)(29) of this chapter; milk products as defined in § 170.3(n)(31) of this chapter; plant protein products as defined in § 170.3(n)(33) of this chapter; and snack foods as defined in § 170.3(n)(37) of this chapter.

- **IOM (1998) 54/**

After reviewing the safety data related to vitamin B_6, the IOM selected neuropathy as the critical endpoint on which to base a UL. The IOM noted that the data failed to demonstrate a causal association between vitamin B_6 intake and other endpoints (e.g., dermatological lesions). The UL for adults was established as 100 mg/day of vitamin B_6 and the UL for children 1-3 years was set at 30 mg/day.

- **EFSA (2006) 55/**

The EFSA expert panel identified the principal toxicity of concern with vitamin B_6 as neuronal damage, sensory and motor effects. EFSA found that data from investigations in humans and case reports indicate that adverse neurological effects are detected after very high doses (i.e., >

53/ *See supra* note 42.
54/ *See supra* note 45.
55/ *See supra* note 42.

500 mg/day). Based on the extensive body of safety data it has reviewed, the expert panel proposed a UL for children 1~3 years at 5 mg/day and for adults at 25 mg/day.

Vitamin B_6 is currently authorized for use in a variety of food products with no limitations other than GMPs. We recognize the vitamin B_6 extracted from fruits and vegetables may be added to foods other than those covered by the existing GRAS regulation. The extensive history of consumption of the fruits and vegetables used as the source of the B_6 demonstrates the safety of this particular dietary source of B_6. The safety is further supported by the safety margins between the UL and the current 90th exposures. The 90th exposure level for children over 4 and adults is 3.78 mg/day while the UL is set at 25 mg/day (for children 1-3, the 90th exposure is 1.82 mg/day compared to a UL of 5 mg/day). Any incremental increase in exposures through the use of the NutriFusion blend would not reasonably be expected to exceed the UL. Based on the safety reviews conducted by IOM and EFSA, the use can reasonably be considered as safe.

6.2.11 Vitamin B_7

Vitamin B_7 or biotin functions as a coenzyme in bicarbonate-dependent carboxylation reactions. Vitamin B_7 is widely distributed in natural foodstuff; fruits and most meats contain about 1 µg/100 g. No toxic effects of oral biotin have been reported in humans.

Vitamin B_7 is listed as GRAS under 21 CFR §182.8159 ("Biotin,") there are no limitations on use levels other than cGMPs.

- **IOM (1998) 56/**

The IOM identified reports showing no toxicity in patients treated with daily doses up to 200 mg orally and up to 20 mg intravenously to treat biotin-responsive inborn errors of metabolism and acquired biotin deficiency. While the IOM noted studies that reported acute doses of biotin (10 mg/100 g body weight) in pregnant rats caused inhibition of fetal and placental growth, the expert panel concluded that these results are not considered useful for deriving a UL.

- **EFSA (2006) 57/**

The EFSA expert panel found that the administration of oral vitamin B_7 in doses up to 100 mg per day to patients with holocarboxylase synthetase and with biotinidase deficiency did not result in adverse effects. Further, the prenatal administration of 10 mg vitamin B_7 during pregnancy have not resulted in any apparent adverse effects. 58/ EFSA concluded that due to the lack of systematic oral intake dose-response studies of vitamin B_7 they cannot derive a UL for this vitamin.

56/ *See supra* note 45.
57/ *See supra* note 42.
58/ Baumgartner, E. R., and T. Suormala. "Multiple carboxylase deficiency: inherited and acquired disorders of biotin metabolism." *International journal for vitamin and nutrition research. Internationale Zeitschrift fur Vitamin-und Ernahrungsforschung. Journal international de vitaminologie et de nutrition* 67.5 (1996): 377-384.

Vitamin B_7 is GRAS with no limitations other than GMPs. The vitamin B_7 extracted from fruits and vegetables is a substitutional use and would not increase vitamin B_7 dietary exposure. Based on the safety reviews conducted by IOM and EFSA, even assuming the intended use of vitamin B_7 in the NutriFusion product will replace all the existing uses, the 90th percentile dietary intake of 60 µg/day can reasonably be considered as safe.

6.2.12 Vitamin B_9

Vitamin B_9 or folate functions as a coenzyme in single-carbon transfers in the metabolism of nucleic and amino acids. Bioavailability of food folate is 80% of that of folic acid. 59/ Common foods that are major sources of vitamin B_9 include fortified ready-to-eat cereals and dark green vegetables such as spinach, green beans and vegetable soup. The Scientific Report of the 2015 Dietary Guidelines Advisory Committee concluded folate is underconsumed among the U.S. population ages 2 years and older. No adverse effects have been associated with consumption of food folate or folic acid in fortified foods or dietary supplements.

Vitamin B_9 is permitted for use by FDA in various food categories under 21 CFR §172.345 ("folic acid (folacin)"), for example, folic acid may be added to foods subject to a standard of identity when the standard of identity specifically provides for the addition of folic acid. It is important to recognize that folic acid or folacin is different from the folate that is found naturally in fruits and vegetables. Folic acid is a stable form of folate and it is commonly used in dietary supplements and foods. Folic acid consists of a *p*-aminobenzoic acid molecule linked at one end to a pteridine ring and at the other end to one glutamic acid molecule. Most naturally occurring folates are pteroylpolyglutamates, which contain one to six additional glutamate molecules joined in a peptide linkage to the γ-carboxyl of glutamate.

- **IOM (1998) 60/**

The IOM evaluated the data and information on all forms of folate, including folic acid and the folate found naturally in foods. The IOM used the term "folate" to refer to all forms of folate, "food folate" to refer to the folate found naturally in food, and "folate from fortified foods and supplements" when referring to the folic acid that is added to foods. After reviewing the safety data on folate, the IOM found that there is limited but suggestive evidence that excessive folate from foods and dietary supplement intake may precipitate neuropathy in vitamin B_{12} deficiency individuals. Based on this potential adverse effect, the UL for supplemental folate from foods and dietary supplements was set at 1,000 µg/day for adults and 300 µg/day for children 1-3 years old. Importantly, the IOM did not set a UL for folate naturally found in foods. As explained by NIH in its fact sheet on folate:

> the FNB established a UL for the synthetic forms of folate (i.e., folic acid) available in dietary supplements and fortified foods (Table 3) [2]. The FNB did not establish a UL for folate from food because high intakes of folate from food sources have not been reported to cause

59/ Winkels, Renate M., et al. "Bioavailability of food folates is 80% of that of folic acid." *The American journal of clinical nutrition* 85.2 (2007): 465-473.
60/ *See supra* note 45.

adverse effects [2]. The ULs do not apply to individuals taking high doses of folic acid under medical supervision [2].61

The IOM, therefore, did not establish a UL for the folate that occurs naturally in foods, which is the folate found in the NutriFusion products.

- **EFSA (2006) 62/**

Like the IOM, EFSA noted that although no systematic toxicological studies of folic acid or other folate are available, an upper safe level can be set for synthetic folic acid on the basis of findings in patients treated with high doses of folic acid. EFSA established an adult UL of 1,000 µg for free folic acid and a UL for children 1-3 years of 200 µg based on identification of a LOAEL of 5,000 µg and selection of a UF of 5. Similarly to the IOM, EFSA based its safety assessment on synthetic forms of folic acid rather than the folate found naturally in food.

The use of vitamin B_9 extracted from fruits and vegetables is expected to be largely a substitutional use and is not expected to increase vitamin B_9 dietary exposure. Moreover, the food folate in the NutriFusion blend is the exact same folate found naturally in foods. Based on the safety reviews conducted by IOM and EFSA, even assuming the intended use of vitamin B9 in the NutriFusion product would replace all the existing uses, the 90th percentile folate dietary intake of 959 µg/day (all individuals above 4) and 540 µg/day (children 1 through 3) can reasonably be considered as safe. The safety is demonstrated by the fact that there is no UL for food folate because there are no reported adverse effects associated with consumption of food folate.

6.3 Non-public Information

Customer information of Nutrifusion's products is redacted to protect confidential business information. The identity of Nutrifusion's customer is unrelated to the safety assessment of the products and not relied upon as a basis for a GRAS conclusion.

6.4 Safety Conclusion

Several expert panels organized by reputable scientific and regulatory agencies including the IOM and EFSA have reviewed the available safety data on the various vitamins and established safety levels when appropriate. The intended use of the NutriFusion product is largely a substitutional use given that most of the vitamins extracted from the fruits and vegetables are currently authorized for use with no limits other than GMPs. For the other vitamins, the long history of consumption of fruits and vegetables as a source of these vitamins supports the safety of the vitamin. In addition, the underlying safety reviews establish the safety of including these plant-based vitamins in the diet. Overall, the existing dietary intake from the proposed use can be considered safe. We, therefore, are of the view that there is a consensus among

61/ *Folate, Dietary Supplement Fact Sheet*, National Institute of Health, Office of Dietary Supplements (April 2016) (available at https://ods.od.nih.gov/factsheets/Folate-HealthProfessional/#en2).
62/ *See supra* note 42.

experts qualified by scientific training and experience to evaluate the safety that there is reasonable certainty the intended use of the NutriFusion product is not harmful.

We have marked certain information related to the NutriFusion product manufacturing process (Section 2.4) and stability data (Section 2.6) as “confidential” and we believe this information should be exempt from disclosure under the Freedom of Information Act.

In summary, due to the demonstrated safe consumption history of the fruits and vegetables that are used to make the NutriFusion product, as well as the expert panels opinions, we concluded that the intended use of NutriFusion product in foods that are otherwise authorized for the addition of vitamins can be considered GRAS through scientific procedures.

7.0 List of Supporting Data and Information

All of the following data and information are publicly available.

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- Bendich, Adrianne. "The safety of β-carotene." *Nutrition and cancer* 11.4 (1988): 207-214.
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- Scientific Committee on Food of European Commission. "Opinion of the Scientific Committee on Food on the tolerable upper intake level of vitamin E."*Bruxelles: European Commission* (2003).
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- Golding, Jean, et al. "Childhood cancer, intramuscular vitamin K, and pethidine given during labour." *Bmj* 305.6849 (1992): 341-346.
- Scientific Committee on Food, European Food Safety Authority. "Tolerable Upper Intake Levels for Vitamins and Minerals." (2006).
- Craciun, A. M., et al. "Improved bone metabolism in female elite athletes after vitamin K supplementation." International journal of sports medicine 19.07 (1998): 479-484.
- *Vitamin K Fact Sheet for Health Professionals,* National Institutes of Health Office of Dietary Supplements (Feb. 2016) (accessed Nov. 8 2016 at https://ods.od.nih.gov/factsheets/VitaminK-HealthProfessional/).
- Institute of Medicine (US) Standing Committee on the Scientific Evaluation of Dietary Reference Intakes. Dietary reference intakes for thiamin, riboflavin, niacin, vitamin B_6, folate, vitamin B_{12}, pantothenic acid, biotin, and choline. National Academies Press (US), 1998.

- Zempleni, Janos, John R. Galloway, and Donald B. McCormick. "Pharmacokinetics of orally and intravenously administered riboflavin in healthy humans." The American journal of clinical nutrition 63.1 (1996): 54-66.
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- Baumgartner, E. R., and T. Suormala. "Multiple carboxylase deficiency: inherited and acquired disorders of biotin metabolism." *International journal for vitamin and nutrition research. Internationale Zeitschrift fur Vitamin-und Ernahrungsforschung. Journal international de vitaminologie et de nutrition* 67.5 (1996): 377-384.
- Winkels, Renate M., et al. "Bioavailability of food folates is 80% of that of folic acid." *The American journal of clinical nutrition* 85.2 (2007): 465-473.
- *Folate, Dietary Supplement Fact Sheet*, National Institute of Health, Office of Dietary Supplements (April 2016) (available at https://ods.od.nih.gov/factsheets/Folate-HealthProfessional/#en2).

Attachment 1

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

Cornerstone Report#: 154-16-004
Attn: William Grand, NutriFusion, LLC.
Address; 19 Executive Park Road, Ste 100, Hilton Head, SC 29928.
Cornerstone Reference #(s): 129422.

Date Sampled: Not Given
Date Received: 06/02/16
Date of Report: 06/21/16

Quality Conformance Results

NF-216 Blend #1

Analysis	Results	Units	Method	Specification Range
Physical				
Moisture	5.1	% w/w	Vac Oven	-
Total Fat	0.4	% w/w	Ether Extraction	-
Total Protein	4.5	% w/w	Kjeldahl	-
Total Ash	4.1	% w/w	Muffle Furnace	-
Cholesterol	<1	mg/100g	GC/MS	-
Total Sugars	21.1	g/100g	HPLC/RI	-
Fiber ADF+NDF	7.3	% w/w	AOAC-991.43	-
Total Starch	<10	mg/100g	AOAC-925.38	-
Total Phytate	<10	mg/g	AOAC-986.11	-
Total Oxalic Acid	15	mg/100g	AOAC-974.24	-
Total Lutein	1.20	mg/100g	HPLC/UV	-
Total Zeaxanthin	0.396	mg/100g	HPLC/UV	-
Total Lycopene	0.145	mg/100g	HPLC/UV	-
Total Pectin	40	mg/100g	HPLC/UV	-
Sucrose Polyester (SPE)	<0.01	% w/w	GC/MS	-
Fat Soluble Vitamins				
Vitamin A (Total Carotenoids)	2,760	IU/225mg	AOAC-2001.13M	>2,500
Vitamin E (Total Tocopherols)	16.0	IU/225mg	AOAC-974.29M	>15
Vitamin D (D_2 + D_3)	221	IU/225mg	AOAC-982.29M	>200
Phylloquinone K_1	26.8	mcg/225mg	JOFCA#42M	None Given
Protein Composite				
Gluten (as Gliadin)	<5	ppm, w/w	AOAC 991.19	-
Oxidative Radical Absorbance Capacity				
ORAC Value	4,280	µmol TE*/g	JOAFC-49, 2001	None Given

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

Cornerstone Report#: 154-16-004
Attn: William Grand, NutriFusion, LLC.
Address; 19 Executive Park Road, Ste 100, Hilton Head, SC 29928.
Cornerstone Reference #(s): 129422.

Date Sampled: Not Given
Date Received: 06/02/16
Date of Report: 06/21/16

Quality Conformance Results

NF-216 Blend #1

Analysis	Results	Units	Method	Specification Range
Microbiology				
Total Aerobic Plate Count	11	CFU/G	SM-9215-B	<10,000
Total Yeast/Mold Count	<1	CFU/G	FDA BAM 7th Ed.	<1,000
E. coli Count (3 Tube MPN)	<3	MPN/G	AOAC-966.24	<3
Salmonella Count	Negative	-	AOAC-2004.03	Negative
Staphylococcus Count	<1	CFU/G	AOAC-975.55	<100
Pseudomonas Aeruginosa	<10	mpn/g	SM-9213F	None Given
Minerals				
Total Calcium	275	mcg/225mg	ICP/OES	None Given
Total Sodium	3,763	mcg/225mg	ICP/OES	None Given
Total Iron	4.3	mcg/225mg	ICP/OES	None Given
Total Selenium	0.18	mcg/225mg	ICP/OES	None Given
Total Phosphorous	285	mcg/225mg	ICP/OES	None Given
Total Magnesium	625	mcg/225mg	ICP/OES	None Given
Total Copper	0.46	mcg/225mg	ICP/OES	None Given
Total Potassium	1,570	mcg/225mg	ICP/OES	None Given
Total Zinc	1.55	mcg/225mg	ICP/OES	None Given
Water Soluble Vitamins				
Vitamin C	33.2	mg/225mg	JOFCA#94M	>30
Thiamin B_1	0.783	mg/225mg	JOCA-A1007M	>0.750
Riboflavin B2	0.248	mg/225mg	JOCA-A1007M	-
Niacin B3	2.164	mg/225mg	JOCA-A1007M	-
Pantothenic Acid	0.196	mg/225mg	JOCA-A1007M	-
Pyridoxine-B6	0.992	mg/225mg	JOCA-A1007M	1.00
Biotin B7	70	mcg/225mg	JOCA-A1007M	-
Folic Acid B9	132	mcg/225mg	JOCA-A1007M	-
Vitamin B_{12}	0.9	mcg/225mg	JOCA-A1007M	-

(b) (6)

Samuel J. LaBonia
President and Technical Director

EPA#TN01074
AOCS#485183
TTB Certified

AOAC#93939
APHA#9798654
ASTA LISTED

Attachment 2

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

Cornerstone Report#: 154-16-004
Attn: William Grand, NutriFusion, LLC.
Address; 19 Executive Park Road, Ste 100, Hilton Head, SC 29928.
Cornerstone Reference #(s): 129423.

Date Sampled: Not Given
Date Received: 06/02/16
Date of Report: 07/08/16

Quality Conformance Results

NF-316 Blend #2

Analysis	Results	Units	Method	Specification Range
Physical				
Moisture	5.6	% w/w	Vac Oven	-
Total Fat	0.3	% w/w	Ether Extraction	-
Total Protein	4.0	% w/w	Kjeldahl	-
Total Ash	4.5	% w/w	Muffle Furnace	-
Cholesterol	<1	mg/100g	GC/MS	-
Total Sugars	18.6	g/100g	HPLC/RI	-
Fiber ADF+NDF	5.9	% w/w	AOAC-991.43	-
Total Starch	<10	mg/100g	AOAC-925.38	-
Total Phytate	<10	mg/g	AOAC-986.11	-
Total Oxalic Acid	7	mg/100g	AOAC-974.24	-
Total Lutein	1.12	mg/100g	HPLC/UV	-
Total Zeaxanthin	0.310	mg/100g	HPLC/UV	-
Total Lycopene	0.096	mg/100g	HPLC/UV	-
Total Pectin	44	mg/100g	HPLC/UV	-
Sucrose Polyester (SPE)	<0.01	% w/w	GC/MS	-
Fat Soluble Vitamins				
Vitamin A (Total Carotenoids)	2,650	IU/225mg	AOAC-2001.13M	>2,500
Vitamin E (Total Tocopherols)	15.2	IU/225mg	AOAC-974.29M	>15
Vitamin D (D_2 + D_3)	214	IU/225mg	AOAC-982.29M	>200
Phylloquinone K_1	3.7	mcg/225mg	JOFCA#42M	None Given
Protein Composite				
Gluten (as Gliadin)	<5	ppm, w/w	AOAC 991.19	-
Oxidative Radical Absorbance Capacity				
ORAC Value	4,030	µmol TE*/g	JOAFC-49, 2001	None Given

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

Cornerstone Report#: 154-16-004
Attn: William Grand, NutriFusion, LLC.
Address; 19 Executive Park Road, Ste 100, Hilton Head, SC 29928.
Cornerstone Reference #(s): 129423.

Date Sampled: Not Given
Date Received: 06/02/16
Date of Report: 07/08/16

Quality Conformance Results

NF-316 Blend #2

Analysis	Results	Units	Method	Specification Range
Microbiology				
Total Aerobic Plate Count	8	CFU/G	SM-9215-B	<10,000
Total Yeast/Mold Count	<1	CFU/G	FDA BAM 7th Ed.	<1,000
E. coli Count (3 Tube MPN)	<3	MPN/G	AOAC-966.24	<3
Salmonella Count	Negative	-	AOAC-2004.03	Negative
Staphylococcus Count	<1	CFU/G	AOAC-975.55	<100
Pseudomonas Aeruginosa	<10	mpn/g	SM-9213F	None Given
Minerals				
Total Calcium	313	mcg/225mg	ICP/OES	None Given
Total Sodium	4,000	mcg/225mg	ICP/OES	None Given
Total Iron	6.1	mcg/225mg	ICP/OES	None Given
Total Selenium	<0.05	mcg/225mg	ICP/OES	None Given
Total Phosphorous	246	mcg/225mg	ICP/OES	None Given
Total Magnesium	1,000	mcg/225mg	ICP/OES	None Given
Total Copper	0.07	mcg/225mg	ICP/OES	None Given
Total Potassium	930	mcg/225mg	ICP/OES	None Given
Total Zinc	1.54	mcg/225mg	ICP/OES	None Given
Water Soluble Vitamins				
Vitamin C	35.6	mg/225mg	JOFCA#94M	>30
Thiamin B_1	0.805	mg/225mg	JOCA-A1007M	>0.750
Riboflavin B2	0.070	mg/225mg	JOCA-A1007M	-
Niacin B3	0.112	mg/225mg	JOCA-A1007M	-
Pantothenic Acid	0.090	mg/225mg	JOCA-A1007M	-
Pyridoxine-B6	1.094	mg/225mg	JOCA-A1007M	1.00
Biotin B7	10	mcg/225mg	JOCA-A1007M	-
Folic Acid B9	16	mcg/225mg	JOCA-A1007M	-
Vitamin B_{12}	0.6	mcg/225mg	JOCA-A1007M	-

(b) (6)

Samuel J. LaBonia
President and Technical Director

Attachment 3

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

Cornerstone Report#: 154-16-004
Attn: William Grand, NutriFusion, LLC.
Address; 19 Executive Park Road, Ste 100, Hilton Head, SC 29928.
Cornerstone Reference #(s): 129424.

Date Sampled: Not Given
Date Received: 06/02/16
Date of Report: 07/08/16

Quality Conformance Results

NF-416 Blend #3

Analysis	Results	Units	Method	Specification Range
Physical				
Moisture	6.1	% w/w	Vac Oven	-
Total Fat	0.8	% w/w	Ether Extraction	-
Total Protein	3.9	% w/w	Kjeldahl	-
Total Ash	4.2	% w/w	Muffle Furnace	-
Cholesterol	<1	mg/100g	GC/MS	-
Total Sugars	7.5	g/100g	HPLC/RI	-
Fiber ADF+NDF	7.7	% w/w	AOAC-991.43	-
Total Starch	<10	mg/100g	AOAC-925.38	-
Total Phytate	<10	mg/g	AOAC-986.11	-
Total Oxalic Acid	20	mg/100g	AOAC-974.24	-
Total Lutein	1.88	mg/100g	HPLC/UV	-
Total Zeaxanthin	0.385	mg/100g	HPLC/UV	-
Total Lycopene	0.142	mg/100g	HPLC/UV	-
Total Pectin	20	mg/100g	HPLC/UV	-
Sucrose Polyester (SPE)	<0.01	% w/w	GC/MS	-
Fat Soluble Vitamins				
Vitamin A (Total Carotenoids)	2,930	IU/225mg	AOAC-2001.13M	>2,500
Vitamin E (Total Tocopherols)	15.5	IU/225mg	AOAC-974.29M	>15
Vitamin D (D_2 + D_3)	226	IU/225mg	AOAC-982.29M	>200
Phylloquinone K_1	18.7	mcg/225mg	JOFCA#42M	None Given
Protein Composite				
Gluten (as Gliadin)	<5	ppm, w/w	AOAC 991.19	-
Oxidative Radical Absorbance Capacity				
ORAC Value	3,810	µmol TE*/g	JOAFC-49, 2001	None Given

CORNERSTONE LABORATORIES LLC

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Cornerstone Report#: 154-16-004
Attn: William Grand, NutriFusion, LLC.
Address; 19 Executive Park Road, Ste 100, Hilton Head, SC 29928.
Cornerstone Reference #(s): 129424.

Date Sampled: Not Given
Date Received: 06/02/16
Date of Report: 07/08/16

Quality Conformance Results

NF-416 Blend #3

Analysis	Results	Units	Method	Specification Range
Microbiology				
Total Aerobic Plate Count	12	CFU/G	SM-9215-B	<10,000
Total Yeast/Mold Count	<1	CFU/G	FDA BAM 7th Ed.	<1,000
E. coli Count (3 Tube MPN)	<3	MPN/G	AOAC-966.24	<3
Salmonella Count	Negative	-	AOAC-2004.03	Negative
Staphylococcus Count	<1	CFU/G	AOAC-975.55	<100
Pseudomonas Aeruginosa	<10	mpn/g	SM-9213F	None Given
Minerals				
Total Calcium	600	mcg/225mg	ICP/OES	None Given
Total Sodium	4,450	mcg/225mg	ICP/OES	None Given
Total Iron	4.8	mcg/225mg	ICP/OES	None Given
Total Selenium	<0.05	mcg/225mg	ICP/OES	None Given
Total Phosphorous	404	mcg/225mg	ICP/OES	None Given
Total Magnesium	164	mcg/225mg	ICP/OES	None Given
Total Copper	0.06	mcg/225mg	ICP/OES	None Given
Total Potassium	2,350	mcg/225mg	ICP/OES	None Given
Total Zinc	2.88	mcg/225mg	ICP/OES	None Given
Water Soluble Vitamins				
Vitamin C	29.7	mg/225mg	JOFCA#94M	>30
Thiamin B_1	0.771	mg/225mg	JOCA-A1007M	>0.750
Riboflavin B2	0.164	mg/225mg	JOCA-A1007M	-
Niacin B3	0.385	mg/225mg	JOCA-A1007M	-
Pantothenic Acid	0.106	mg/225mg	JOCA-A1007M	-
Pyridoxine-B6	1.142	mg/225mg	JOCA-A1007M	1.00
Biotin B7	68	mcg/225mg	JOCA-A1007M	-
Folic Acid B9	118	mcg/225mg	JOCA-A1007M	-
Vitamin B_{12}	0.5	mcg/225mg	JOCA-A1007M	-

(b) (6)

Samuel J. LaBonia
President and Technical Director

EPA#TN01074
AOCS#485183
TTB Certified

AOAC#93939
APHA#9798654
ASTA LISTED

Attachment 4

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

Cornerstone Report#: 154-16-004
Attn: William Grand, NutriFusion, LLC.
Address; 19 Executive Park Road, Ste 100, Hilton Head, SC 29928.
Cornerstone Reference #(s): 129425.

Date Sampled: Not Given
Date Received: 06/02/16
Date of Report: 07/08/16

Quality Conformance Results

NF-661 Blend #4

Analysis	Results	Units	Method	Specification Range
Physical				
Moisture	5.3	% w/w	Vac Oven	-
Total Fat	0.6	% w/w	Ether Extraction	-
Total Protein	4.2	% w/w	Kjeldahl	-
Total Ash	4.9	% w/w	Muffle Furnace	-
Cholesterol	<1	mg/100g	GC/MS	-
Total Sugars	11.9	g/100g	HPLC/RI	-
Fiber ADF+NDF	11.3	% w/w	AOAC-991.43	-
Total Starch	<10	mg/100g	AOAC-925.38	-
Total Phytate	<10	mg/g	AOAC-986.11	-
Total Oxalic Acid	14	mg/100g	AOAC-974.24	-
Total Lutein	0.76	mg/100g	HPLC/UV	-
Total Zeaxanthin	0.146	mg/100g	HPLC/UV	-
Total Lycopene	0.052	mg/100g	HPLC/UV	-
Total Pectin	59	mg/100g	HPLC/UV	-
Sucrose Polyester (SPE)	<0.01	% w/w	GC/MS	-
Fat Soluble Vitamins				
Vitamin A (Total Carotenoids)	2,880	IU/225mg	AOAC-2001.13M	>2,500
Vitamin E (Total Tocopherols)	15.9	IU/225mg	AOAC-974.29M	>15
Vitamin D (D_2 + D_3)	262	IU/225mg	AOAC-982.29M	>200
Phylloquinone K_1	41.3	mcg/225mg	JOFCA#42M	40
Protein Composite				
Gluten (as Gliadin)	<5	ppm, w/w	AOAC 991.19	-
Oxidative Radical Absorbance Capacity				
ORAC Value	4,630	µmol TE*/g	JOAFC-49, 2001	None Given

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

Cornerstone Report#: 154-16-004
Attn: William Grand, NutriFusion, LLC.
Address; 19 Executive Park Road, Ste 100, Hilton Head, SC 29928.
Cornerstone Reference #(s): 129425.

Date Sampled: Not Given
Date Received: 06/02/16
Date of Report: 07/08/16

Quality Conformance Results

NF-661 Blend #4

Analysis	Results	Units	Method	Specification Range
Microbiology				
Total Aerobic Plate Count	10	CFU/G	SM-9215-B	<10,000
Total Yeast/Mold Count	<1	CFU/G	FDA BAM 7th Ed.	<1,000
E. coli Count (3 Tube MPN)	<3	MPN/G	AOAC-966.24	<3
Salmonella Count	Negative	-	AOAC-2004.03	Negative
Staphylococcus Count	<1	CFU/G	AOAC-975.55	<100
Pseudomonas Aeruginosa	<10	mpn/g	SM-9213F	None Given
Minerals				
Total Calcium	765	mcg/225mg	ICP/OES	None Given
Total Sodium	4,500	mcg/225mg	ICP/OES	None Given
Total Iron	6.5	mcg/225mg	ICP/OES	None Given
Total Selenium	0.06	mcg/225mg	ICP/OES	None Given
Total Phosphorous	359	mcg/225mg	ICP/OES	None Given
Total Magnesium	610	mcg/225mg	ICP/OES	None Given
Total Copper	0.67	mcg/225mg	ICP/OES	None Given
Total Potassium	2,008	mcg/225mg	ICP/OES	None Given
Total Zinc	2.05	mcg/225mg	ICP/OES	None Given
Water Soluble Vitamins				
Vitamin C	36.5	mg/225mg	JOFCA#94M	>30
Thiamin B_1	0.779	mg/225mg	JOCA-A1007M	>0.750
Riboflavin B2	0.855	mg/225mg	JOCA-A1007M	>0.850
Niacin B3	10.221	mg/225mg	JOCA-A1007M	>10.00
Pantothenic Acid	5.228	mg/225mg	JOCA-A1007M	>5.00
Pyridoxine-B6	1.016	mg/225mg	JOCA-A1007M	-
Biotin B7	185	mcg/225mg	JOCA-A1007M	>150
Folic Acid B9	202	mcg/225mg	JOCA-A1007M	>200
Vitamin B_{12}	0.7	mcg/225mg	JOCA-A1007M	-

(b) (6)

Samuel J. LaBonia
President and Technical Director

Attachment 5

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

NUTRIFUSION, LLC.
ATTN: WILLIAM J.H. GRAND
3 CLAIRE DRIVE
HILTON HEAD, SC 29928

June 20, 2016

ACCOUNT #: 10-0623

REPORT NUMBER: 126-16-010

Reference: Contaminant Screen.

Laboratory Report
Case Narrative

On June 2, 2016 one sample was submitted to the laboratory for analyses detailed on the chain of custody accompanying the sample. The sample was received sealed and in good condition. There were no analytical problems encountered and the results of the analysis are on the following pages.

If you have any questions about this report please do not hesitate to contact me.

Thank you for using Cornerstone Laboratories.

Sincerely,

(b) (6)

Samuel J. LaBonia
President and Technical Director

EPA#TN01074
AOCS#485183
TTB Certified

AOAC#93939
APHA#9798654
ASTA LISTED

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Organophosphorous Analysis

Laboratory Number: 129422 **Sample ID: NF-216, Blend #1**

ANALYSIS	RESULT	STATUS	METHOD	DATE ANALYZED	ANALYST
Carbophenothion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Diasulfoton	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Diazinon	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Ethion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Malathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Methyl Parathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Ethyl Parathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Phorate	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn

Certificate of Organochlorine Analysis

Laboratory Number: 129422 **Sample ID: NF-216, Blend #1**

ANALYSIS	RESULT	STATUS	METHOD	DATE ANALYZED	ANALYST
Aldrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
α-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
ù-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
β-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Û-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Chlordane (Total)	<0.020 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDT	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDD	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDE	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Dieldrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Endosulfan	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Endrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Heptachlor	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Heptachlor Epoxide	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Hexachlorobenzene	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Methoxychlor	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Mirex	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Toxaphene	<0.100 ppm	PASS	GC/ECD	06/17/16	K. Shinn
PCB's (Total)	<0.100 ppm	PASS	GC/ECD	06/17/16	K. Shinn

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Heavy Metals Analysis

Laboratory Number: 129422 **Sample ID: NF-216, Blend #1**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Arsenic	<0.1 ppm	PASS	1.0 ppm	ICAP	06/07/16	M. Blum
Cadmium	<0.1 ppm	PASS	0.5 ppm	ICAP	06/07/16	M. Blum
Lead	<0.1 ppm	PASS	1.5 ppm	ICAP	06/07/16	M. Blum
Mercury	<0.01 ppm	PASS	0.2 ppm	7040	06/08/16	M. Blum
Bismuth	<0.1 ppm	PASS	0.2 ppm	ICAP	06/07/16	M. Blum
Antimony	<0.1 ppm	PASS	0.2 ppm	ICAP	06/07/16	M. Blum

Certificate of Residual Solvent Analysis

Laboratory Number: 129422 **Sample ID: NF-216, Blend #1**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Acetone	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Acetonitrile	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Benzene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Chloroform	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Dichloromethane	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
MEK	<0.050 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
MTBE	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Hexane	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Toluene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Ethylbenzene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Carbon Tet.	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Vinyl Chloride	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Tetrachloroethene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Trichloroethene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Synthetic Preservatives Analysis

Laboratory Number: 129422 **Sample ID: NF-216, Blend #1**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
BHA	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
BHT	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
TBHQ	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
Ethoxyquin	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
Propyl Gallate	<0.1 ppm	PASS	0.1 ppm	GC/MS	06/15/16	S. LaBonia

Certificate of Glycol Analysis

Laboratory Number: 129422 **Sample ID: NF-216, Blend #1**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Ethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn
Diethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn
Polyethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn

Certificate of Polyether Polyols Analysis

Laboratory Number: 129422 **Sample ID: NF-216, Blend #1**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Propylene Oxide	<0.005 ppm	PASS	0.005 ppm	HP-GC/MS	06/10/16	S. LaBonia
1,4-Dioxane	<0.005 ppm	PASS	0.005 ppm	HP-GC/MS	06/10/16	S. LaBonia

Attachment 6

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

NUTRIFUSION, LLC.
ATTN: WILLIAM J.H. GRAND
3 CLAIRE DRIVE
HILTON HEAD, SC 29928

June 20, 2016

ACCOUNT #: 10-0623

REPORT NUMBER: 126-16-010

Reference: Contaminant Screen.

Laboratory Report
Case Narrative

On June 2, 2016 one sample was submitted to the laboratory for analyses detailed on the chain of custody accompanying the sample. The sample was received sealed and in good condition. There were no analytical problems encountered and the results of the analysis are on the following pages.

If you have any questions about this report please do not hesitate to contact me.

Thank you for using Cornerstone Laboratories.

Sincerely,

(b) (6)

Samuel J. LaBonia
President and Technical Director

EPA#TN01074
AOCS#485183
TTB Certified

AOAC#93939
APHA#9798654
ASTA LISTED

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Organophosphorous Analysis

Laboratory Number: 129423 **Sample ID: NF-316, Blend #2**

ANALYSIS	RESULT	STATUS	METHOD	DATE ANALYZED	ANALYST
Carbophenothion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Diasulfoton	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Diazinon	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Ethion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Malathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Methyl Parathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Ethyl Parathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Phorate	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn

Certificate of Organochlorine Analysis

Laboratory Number: 129423 **Sample ID: NF-316, Blend #2**

ANALYSIS	RESULT	STATUS	METHOD	DATE ANALYZED	ANALYST
Aldrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
α-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
ù-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
β-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Û-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Chlordane (Total)	<0.020 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDT	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDD	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDE	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Dieldrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Endosulfan	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Endrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Heptachlor	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Heptachlor Epoxide	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Hexachlorobenzene	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Methoxychlor	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Mirex	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Toxaphene	<0.100 ppm	PASS	GC/ECD	06/17/16	K. Shinn
PCB's (Total)	<0.100 ppm	PASS	GC/ECD	06/17/16	K. Shinn

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Heavy Metals Analysis

Laboratory Number: 129423 **Sample ID: NF-316, Blend #2**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Arsenic	<0.1 ppm	PASS	1.0 ppm	ICAP	06/07/16	M. Blum
Cadmium	<0.1 ppm	PASS	0.5 ppm	ICAP	06/07/16	M. Blum
Lead	<0.1 ppm	PASS	1.5 ppm	ICAP	06/07/16	M. Blum
Mercury	<0.01 ppm	PASS	0.2 ppm	7040	06/08/16	M. Blum
Bismuth	<0.1 ppm	PASS	0.2 ppm	ICAP	06/07/16	M. Blum
Antimony	<0.1 ppm	PASS	0.2 ppm	ICAP	06/07/16	M. Blum

Certificate of Residual Solvent Analysis

Laboratory Number: 129423 **Sample ID: NF-316, Blend #2**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Acetone	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Acetonitrile	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Benzene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Chloroform	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Dichloromethane	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
MEK	<0.050 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
MTBE	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Hexane	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Toluene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Ethylbenzene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Carbon Tet.	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Vinyl Chloride	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Tetrachloroethene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Trichloroethene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Synthetic Preservatives Analysis

Laboratory Number: 129423 **Sample ID: NF-316, Blend #2**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
BHA	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
BHT	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
TBHQ	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
Ethoxyquin	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
Propyl Gallate	<0.1 ppm	PASS	0.1 ppm	GC/MS	06/15/16	S. LaBonia

Certificate of Glycol Analysis

Laboratory Number: 129423 **Sample ID: NF-316, Blend #2**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Ethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn
Diethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn
Polyethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn

Certificate of Polyether Polyols Analysis

Laboratory Number: 129423 **Sample ID: NF-316, Blend #2**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Propylene Oxide	<0.005 ppm	PASS	0.005 ppm	HP-GC/MS	06/10/16	S. LaBonia
1,4-Dioxane	<0.005 ppm	PASS	0.005 ppm	HP-GC/MS	06/10/16	S. LaBonia

Attachment 7

CORNERSTONE LABORATORIES LLC

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ATTN: WILLIAM J.H. GRAND
3 CLAIRE DRIVE
HILTON HEAD, SC 29928

June 20, 2016

ACCOUNT #: 10-0623

REPORT NUMBER: 126-16-010

Reference: Contaminant Screen.

Laboratory Report
Case Narrative

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If you have any questions about this report please do not hesitate to contact me.

Thank you for using Cornerstone Laboratories.

Sincerely,

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Samuel J. LaBonia
President and Technical Director

EPA#TN01074
AOCS#485183
TTB Certified

AOAC#93939
APHA#9798654
ASTA LISTED

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Organophosphorous Analysis

Laboratory Number: 129424 **Sample ID: NF-416, Blend #3**

ANALYSIS	RESULT	STATUS	METHOD	DATE ANALYZED	ANALYST
Carbophenothion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Diasulfoton	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Diazinon	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Ethion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Malathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Methyl Parathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Ethyl Parathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Phorate	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn

Certificate of Organochlorine Analysis

Laboratory Number: 129424 **Sample ID: NF-416, Blend #3**

ANALYSIS	RESULT	STATUS	METHOD	DATE ANALYZED	ANALYST
Aldrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
α-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
ù-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
β-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Û-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Chlordane (Total)	<0.020 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDT	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDD	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDE	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Dieldrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Endosulfan	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Endrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Heptachlor	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Heptachlor Epoxide	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Hexachlorobenzene	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Methoxychlor	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Mirex	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Toxaphene	<0.100 ppm	PASS	GC/ECD	06/17/16	K. Shinn
PCB's (Total)	<0.100 ppm	PASS	GC/ECD	06/17/16	K. Shinn

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Heavy Metals Analysis

Laboratory Number: 129424 **Sample ID: NF-416, Blend #3**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Arsenic	<0.1 ppm	PASS	1.0 ppm	ICAP	06/07/16	M. Blum
Cadmium	<0.1 ppm	PASS	0.5 ppm	ICAP	06/07/16	M. Blum
Lead	<0.1 ppm	PASS	1.5 ppm	ICAP	06/07/16	M. Blum
Mercury	<0.01 ppm	PASS	0.2 ppm	7040	06/08/16	M. Blum
Bismuth	<0.1 ppm	PASS	0.2 ppm	ICAP	06/07/16	M. Blum
Antimony	<0.1 ppm	PASS	0.2 ppm	ICAP	06/07/16	M. Blum

Certificate of Residual Solvent Analysis

Laboratory Number: 129424 **Sample ID: NF-416, Blend #3**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Acetone	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Acetonitrile	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Benzene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Chloroform	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Dichloromethane	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
MEK	<0.050 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
MTBE	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Hexane	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Toluene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Ethylbenzene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Carbon Tet.	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Vinyl Chloride	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Tetrachloroethene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Trichloroethene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Synthetic Preservatives Analysis

Laboratory Number: 129424 **Sample ID: NF-416, Blend #3**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
BHA	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
BHT	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
TBHQ	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
Ethoxyquin	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
Propyl Gallate	<0.1 ppm	PASS	0.1 ppm	GC/MS	06/15/16	S. LaBonia

Certificate of Glycol Analysis

Laboratory Number: 129424 **Sample ID: NF-416, Blend #3**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Ethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn
Diethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn
Polyethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn

Certificate of Polyether Polyols Analysis

Laboratory Number: 129424 **Sample ID: NF-416, Blend #3**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Propylene Oxide	<0.005 ppm	PASS	0.005 ppm	HP-GC/MS	06/10/16	S. LaBonia
1,4-Dioxane	<0.005 ppm	PASS	0.005 ppm	HP-GC/MS	06/10/16	S. LaBonia

Attachment 8

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

NUTRIFUSION, LLC.
ATTN: WILLIAM J.H. GRAND
3 CLAIRE DRIVE
HILTON HEAD, SC 29928

June 20, 2016

ACCOUNT #: 10-0623

REPORT NUMBER: 126-16-010

Reference: Contaminant Screen.

Laboratory Report
Case Narrative

On June 2, 2016 one sample was submitted to the laboratory for analyses detailed on the chain of custody accompanying the sample. The sample was received sealed and in good condition. There were no analytical problems encountered and the results of the analysis are on the following pages.

If you have any questions about this report please do not hesitate to contact me.

Thank you for using Cornerstone Laboratories.

Sincerely,

(b) (6)

Samuel J. LaBonia
President and Technical Director

EPA#TN01074
AOCS#485183
TTB Certified

AOAC#93939
APHA#9798654
ASTA LISTED

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Organophosphorous Analysis

Laboratory Number: 129425 **Sample ID: NF-661, Blend #4**

ANALYSIS	RESULT	STATUS	METHOD	DATE ANALYZED	ANALYST
Carbophenothion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Diasulfoton	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Diazinon	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Ethion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Malathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Methyl Parathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Ethyl Parathion	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn
Phorate	<0.100 ppm	PASS	GC/MS	06/12/16	K. Shinn

Certificate of Organochlorine Analysis

Laboratory Number: 129425 **Sample ID: NF-661, Blend #4**

ANALYSIS	RESULT	STATUS	METHOD	DATE ANALYZED	ANALYST
Aldrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
α-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
ù-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
β-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Û-BHC	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Chlordane (Total)	<0.020 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDT	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDD	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
4,4'-DDE	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Dieldrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Endosulfan	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Endrin	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Heptachlor	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Heptachlor Epoxide	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Hexachlorobenzene	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Methoxychlor	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Mirex	<0.010 ppm	PASS	GC/ECD	06/17/16	K. Shinn
Toxaphene	<0.100 ppm	PASS	GC/ECD	06/17/16	K. Shinn
PCB's (Total)	<0.100 ppm	PASS	GC/ECD	06/17/16	K. Shinn

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Heavy Metals Analysis

Laboratory Number: 129425 **Sample ID: NF-661, Blend #4**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Arsenic	<0.1 ppm	PASS	1.0 ppm	ICAP	06/07/16	M. Blum
Cadmium	<0.1 ppm	PASS	0.5 ppm	ICAP	06/07/16	M. Blum
Lead	<0.1 ppm	PASS	1.5 ppm	ICAP	06/07/16	M. Blum
Mercury	<0.01 ppm	PASS	0.2 ppm	7040	06/08/16	M. Blum
Bismuth	<0.1 ppm	PASS	0.2 ppm	ICAP	06/07/16	M. Blum
Antimony	<0.1 ppm	PASS	0.2 ppm	ICAP	06/07/16	M. Blum

Certificate of Residual Solvent Analysis

Laboratory Number: 129425 **Sample ID: NF-661, Blend #4**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Acetone	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Acetonitrile	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Benzene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Chloroform	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Dichloromethane	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
MEK	<0.050 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
MTBE	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Hexane	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Toluene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Ethylbenzene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Carbon Tet.	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Vinyl Chloride	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Tetrachloroethene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia
Trichloroethene	<0.005 ppm	PASS	0.005 ppm	USP467	06/14/16	S. LaBonia

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **June 20, 2016**

ACCOUNT #: 10-0623 **REPORT NUMBER: 126-16-010**

Reference: Contaminant Screen.

Certificate of Synthetic Preservatives Analysis

Laboratory Number: 129425 **Sample ID: NF-661, Blend #4**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
BHA	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
BHT	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
TBHQ	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
Ethoxyquin	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/15/16	S. LaBonia
Propyl Gallate	<0.1 ppm	PASS	0.1 ppm	GC/MS	06/15/16	S. LaBonia

Certificate of Glycol Analysis

Laboratory Number: 129425 **Sample ID: NF-661, Blend #4**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Ethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn
Diethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn
Polyethylene Glycol	<0.05 ppm	PASS	0.05 ppm	GC/MS	06/08/16	K. Shinn

Certificate of Polyether Polyols Analysis

Laboratory Number: 129425 **Sample ID: NF-661, Blend #4**

ANALYSIS	RESULT	STATUS	LIMIT	METHOD	DATE ANALYZED	ANALYST
Propylene Oxide	<0.005 ppm	PASS	0.005 ppm	HP-GC/MS	06/10/16	S. LaBonia
1,4-Dioxane	<0.005 ppm	PASS	0.005 ppm	HP-GC/MS	06/10/16	S. LaBonia

NUTRI FUSION

CERTIFICATE OF ANALYSIS

Product: Fruit & Vegetable Blend #4	Code:	**NF-661**
	Lot Number:	**Sample**
	Date issued:	**4/4/2013**

ITEM	SPECIFICATION	RESULT
Appearance:	Powder	Conforms
Color:	Pale orangish pink	Conforms
Odor:	Characteristic	Conforms
Taste:	Typical	Conforms
Identification [FTIR]:	Matches standard	Conforms
Loss on drying:	Not more than 10.0%	3.28%
Minimum Nutrient Claim Per 225.00 mg of premix:		
Vitamin A:	Not less than 2500.00 IU	Conforms**
Vitamin D:	Not less than 200.00 IU	Conforms**
Vitamin E:	Not less than 15.00 IU	Conforms**
Vitamin C:	Not less than 30.00 mg	Conforms**
Vitamin K1	Not less than 0.400 mg	Conforms**
Vitamin B1 (Thiamine)	Not less than 0.75 mg	Conforms**
Vitamin B2 (Riboflavin)	Not less than 0.8500 mg	Conforms**
Vitamin B3 (Niacin)	Not less than 10.00 mg	Conforms**
Vitamin B5 (Pantothenic Acid)	Not less than 5.00 mg	Conforms**
Vitamin B6 (Pyridoxine)	Not less than 1.00 mg	Conforms**
Vitamin B7 (Biotin)	Not less than .1500 mg	Conforms**
Vitamin B9 (Folic Acid)	Not less than .200 mg	Conforms**
Sodium:	Not less than 3.8983 mg	Conforms**
Water soluble vegetable powder	Not less than 69.6018 mg	Conforms**
Water soluble fruit powder	Not less than 69.6018 mg	Conforms**
Total plate count:	Not more than 3000/g	Not more than 50/g
Yeast and mold:	Not more than 300/g	Not more than 50/g
E. Coli:	Negative	Negative
Salmonella:	Negative	Negative
Coliforms:	Not more than 10/g	Negative
Staphylococcus Aureus:	Negative	Negative
Manufacturer/expiration date:	April 4, 2013	April 4, 2015

** Based on input/witnessed weighing.

Attachment 9

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

Cornerstone Report#: 033-15-004
Attn: Brad Young, AddisonField, Inc.
Address; 2 Townsend Street, 2-808, San Francisco, CA 94107.
Cornerstone Reference #(s): 117210-117211.

Date Sampled: 01/15/15
Date Received: 02/02/15
Date of Report: 02/13/15

Quality Conformance Results

RDA-12 Dietary Supplement Powder Lot#1304048 MFG:05/2013

Analysis	Results	Units	Method	Specification Range
Physical				
Moisture	1.6	% w/w	Vac Oven	5.0
Fat Soluble Vitamins				
Vitamin A	2,680	IU/225mg	AOAC-974.29M	2,514
Vitamin E	18.3	IU/225mg	AOAC-974.29M	15
Vitamin D	279	IU/225mg	AOAC-982.29M	257
Phylloquinone K_1	52	mcg/225mg	JOFCA#42M	42
Water Soluble Vitamins				
Vitamin C	39	mcg/225mg	JOFCA#94M	31
Thiamin B_1	745	mcg/225mg	JOCA-A1007M	756
Riboflavin B_2	910	mcg/225mg	JOCA-A1007M	869
Niacin B_3	10,115	mcg/225mg	JOCA-A1007M	9,946
Pantothenic Acid	5,020	mcg/225mg	JOCA-A1007M	5,172
Pyridoxine-B_6	811	mcg/225mg	JOCA-A1007M	970
Biotin B_7	174	mcg/225mg	JOCA-A1007M	157
Folic Acid B_9	206	mcg/225mg	JOCA-A1007M	186

Comments

Sample was received in its original packaging.

EPA#TN01074
AOCS#485183
ADEQ#88-0859

AOAC#93939
APHA#9798654
ASTA LISTED

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223

Cornerstone Report#: 033-15-004
Attn: Brad Young, AddisonField, Inc.
Address; 2 Townsend Street, 2-808, San Francisco, CA 94107.
Cornerstone Reference #(s): 117210-117211.

Date Sampled: 01/15/15
Date Received: 02/02/15
Date of Report: 02/13/15

Quality Conformance Results

RDA-12 Dietary Supplement Capsules Lot#1304047 MFG:05/2013 Capsule Weight (avg) 410mg

Analysis	Results	Units	Method	Specification Range
Physical				
Moisture	5.1	% w/w	Vac Oven	5.0
Fat Soluble Vitamins				
Vitamin A	2,440	IU/capsule	AOAC-974.29M	2,514
Vitamin E	14.8	IU/capsule	AOAC-974.29M	15
Vitamin D	261	IU/capsule	AOAC-982.29M	257
Phylloquinone K_1	40	mcg/capsule	JOFCA#42M	42
Water Soluble Vitamins				
Vitamin C	30	mcg/capsule	JOFCA#94M	31
Thiamin B_1	759	mcg/capsule	JOCA-A1007M	756
Riboflavin B_2	881	mcg/capsule	JOCA-A1007M	869
Niacin B_3	9,960	mcg/capsule	JOCA-A1007M	9,946
Pantothenic Acid	5,203	mcg/capsule	JOCA-A1007M	5,172
Pyridoxine-B_6	995	mcg/capsule	JOCA-A1007M	970
Biotin B_7	162	mcg/capsule	JOCA-A1007M	157
Folic Acid B_9	180	mcg/capsule	JOCA-A1007M	186

Comments

Sample was received in its original packaging.

(b) (6)

Samuel J. LaBonia
President and Technical Director

EPA#TN01074
AOCS#485183
ADEQ#88-0859

AOAC#93939
APHA#9798654
ASTA LISTED

Attachment 10

(Contains Confidential Business Information)

NUTRI FUSION™

Pasta Study

Background:

1. **NutriFusion™ is** a blend of fruits and/or vegetables that can significantly increase the nutritional profile, and therefore the marketability, of food, beverage and supplement products. It does not affect taste or functionality of the products it goes into and is 100% natural.
2. NutriFusion supplies the complex nutrients and phytonutrients from fresh fruits and vegetables.
3. **Three major claims can be made:**
   - % of RDI: Such as 25 % of the recommended daily value for Vitamins A, C, D, E, B1, B2 etc.
   - Source claim: Such as rich in antioxidants, excellent source of Vitamins A, C, D, E, B1, B2 etc.
   - Serving Claims: Such as provides the nutrients from 1 serving of vegetables in each serving of pasta.
4. In certain products, such as baked goods, it can extend shelf life due to the high levels of anti-oxidants (both from vitamins and polyphenols in the fruits & vegetables).

Purpose:

1. The purpose of the study was to see if the pasta prepared at home by the consumer would retain the nutritional value from NutriFusion™ as stated on the nutritional label per the pasta box.
2. The pasta goes through 3 stages of heat in production and consumption:
   a. Initial production: the flour etc is mixed, cooked and turned into wet pasta.
   b. The pasta then goes through a 4-6 hour drying oven at 185-195 degrees F. to dry for cutting and packaging.
   c. Finally, the consumer, at home, cooks the pasta in boiling water for 11-13 minutes.

Methodology:

10 month old pasta was randomly selected for testing.

Background:

- A third-party lab was sent 3 boxes of pasta made with GrandFusion™;
- Finished pasta boxes were randomly selected for testing. Per the box code, the pasta was produced 10 months prior to testing.
- The lab was instructed to cook the pasta per the directions on the box as a normal consumer would at home. [The directions are to boil water, add the pasta, wait for re-boil, and cook for 11 to 13 minutes.]

Results:

1. Attached you will find the nutritional analysis supplied by Cornerstone Labs, Memphis TN.
2. The nutritional results are 100% in line with the original nutritional claims on the box.
3. There was no decline in the nutrients per the nutritional analysis panel on the pasta box.
4. The pasta shows an excellent shelf life; indicating the consumer is benefiting from the bioactive nutrients found in NutriFusion™/GrandFusion™.

Study Completed: July 15, 2013

Why this is important!

Pending Health Crisis:

1. The CDC, the World Health Organization and many other international bodies feel the world is heading to a global health crisis. Heart disease, cancer, and diabetes are assuming epidemic proportions. The number one reason is the lack of protective nutrients in our diets. Why is this happening?

    - Poor diets. We are not getting enough of the protective nutrients in our diets. There's no shortage of calories but the key nutrients that promote health and protect us are missing.
    - Lack of physical activity.

2. Only 6% of individuals achieve their recommended target for vegetables and
3. 8% achieve their recommended target for fruit in an average day per the USDA guidelines.

    Source: **The National Fruit & Vegetable Alliance's** National Action Plan report card. Steering Committee Members include:

- CDC, Centers for Disease Control & Prevention,
- American Cancer Society,
- American Diabetes Association,
- American Dietetic Association,
- American Heart Association,
- National Cancer Institute,
- USDA: (Food, Nutrition and Consumer Services, Research, Education and Economics, Marketing and Regulatory Programs).
- California Department of Public Health,
- National Alliance for Nutrition & Physical Activity,
- Produce for Better Health Foundation,
- American Frozen Food Institute,
- Canned Food Alliance,
- Produce Marketing Association,
- United Fresh Produce Association,
- National Council of Fruit & Vegetable Nutrition Coordinators,

http://www.nfva.org/pdfs/nfva/FINALNAP2010.pdf **The National Fruit & Vegetable Alliance's** National Action Plan report card

CORNERSTONE LABORATORIES LLC

1775 Moriah Woods Blvd., Ste. 12 ▪ Memphis, TN 38117 ▪ (901) 398-4001 Fax: (901) 398-4223 (

NUTRIFUSION, LLC.
ATTN: WILLIAM J.H. GRAND
3 CLAIRE DRIVE
HILTON HEAD, SC 29928

July 15, 2013

ACCOUNT #: 10-0623

REPORT NUMBER: 179-13-013

Reference: (b) (6)

LABORATORY REPORT
CASE NARRATIVE

On June 28, 2013 three samples were submitted to the laboratory for analyses detailed on the chain of custody accompanying the samples. The samples were received sealed and in good condition. Prior to analysis the samples were prepared as per the box label. There were no analytical problems encountered and the results of the analysis are on the following pages.

If you have any questions about this report please do not hesitate to contact me.

Thank you for using Cornerstone Laboratories.

Sincerely,

(b) (6)

Samuel J. LaBonia
President and Technical Director

EPA#TN01074
AOCS#485183
ADEQ#88-0859

AOAC#93939
APHA#9798654
ASTA LISTED

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **July 15, 2013**

ACCOUNT #: 10-0623 **REPORT NUMBER: 179-13-013**

Reference: (b) (6)

Report Analysis

Laboratory Number: 104220

Sample ID: Pasta Plus Veggie Rotini
Serving Size: 56g
Samples Taken: 07/09/13

Nutrient	Result/Serving	Units	%DV	100% DV	Analysis Date	Analyst
Vitamin A	1,140	IU	23%	5,000	07/10/13	S. LaBonia
Vitamin E	8.2	IU	27%	30	07/10/13	S. LaBonia
Vitamin D	105	IU	26%	400	07/13/13	S. LaBonia
Vitamin C	15.8	mg	26%	60	07/12/13	K. Shinn
Vitamin B1	0.664	mg	44%	1.50	07/12/13	K. Shinn
Vitamin B6	0.593	mg	30%	2.00	07/12/13	K. Shinn
Vitamin K	0.010	mg	13%	0.080	07/14/13	S. LaBonia

Laboratory Number: 104221

Sample ID: Pasta Plus Veggie Penne Rigate
Serving Size: 56g
Samples Taken: 07/09/13

Nutrient	Result/Serving	Units	%DV	100% DV	Analysis Date	Analyst
Vitamin A	1,290	IU	26%	5,000	07/10/13	S. LaBonia
Vitamin E	8.8	IU	29%	30	07/10/13	S. LaBonia
Vitamin D	113	IU	28%	400	07/13/13	S. LaBonia
Vitamin C	14.2	mg	24%	60	07/12/13	K. Shinn
Vitamin B1	0.627	mg	42%	1.50	07/12/13	K. Shinn
Vitamin B6	0.616	mg	31%	2.00	07/12/13	K. Shinn
Vitamin K	0.011	mg	14%	0.080	07/14/13	S. LaBonia

CORNERSTONE LABORATORIES, LLC

NUTRIFUSION, LLC. **July 15, 2013**

ACCOUNT #: 10-0623 **REPORT NUMBER: 179-13-013**

Reference: (b) (6)

Report Analysis

Laboratory Number: 104222

Sample ID: Pasta Plus Veggie Elbows
Serving Size: 56g
Samples Taken: 07/09/13

Nutrient	Result/Serving	Units	%DV	100% DV	Analysis Date	Analyst
Vitamin A	1,206	IU	24%	5,000	07/10/13	S. LaBonia
Vitamin E	7.8	IU	26%	30	07/10/13	S. LaBonia
Vitamin D	96	IU	24%	400	07/13/13	S. LaBonia
Vitamin C	15.0	mg	25%	60	07/12/13	K. Shinn
Vitamin B1	0.651	mg	43%	1.50	07/12/13	K. Shinn
Vitamin B6	0.577	mg	29%	2.00	07/12/13	K. Shinn
Vitamin K	0.015	mg	19%	0.080	07/14/13	S. LaBonia

Attachment 11

Percentiles and Standard Errors of Usual Intake from Food and Beverages 2007-2010

Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture.

7/2013

Energy (kcal/day)

Energy (kcal/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	931 (43.2)	1026 (37.0)	1202 (27.8)	1408 (26.1)	1629 (31.3)	1844 (41.8)	1975 (50.7)
Males: 4-8	1255 (29.4)	1352 (26.0)	1528 (21.0)	1742 (22.9)	1978 (33.6)	2211 (50.1)	2359 (62.6)
Males: 9-13	1479 (47.5)	1604 (40.7)	1831 (31.9)	2103 (33.9)	2397 (52.9)	2682 (80.5)	2864 (101.5)
Males: 14-18	1719 (88.6)	1867 (79.5)	2145 (61.3)	2481 (56.5)	2860 (83.0)	3243 (134.1)	3483 (169.3)
Males: 19-30	1621 (64.6)	1822 (59.9)	2187 (53.6)	2640 (52.7)	3144 (63.5)	3637 (82.9)	3948 (97.5)
Males: 31-50	1649 (30.7)	1847 (28.1)	2208 (28.6)	2651 (36.6)	3146 (53.3)	3639 (75.1)	3944 (90.8)
Males: 19-50	1634 (32.6)	1834 (29.4)	2202 (28.5)	2650 (33.9)	3142 (45.0)	3626 (58.0)	3943 (66.5)
Males: 51-70	1413 (41.4)	1584 (37.2)	1900 (30.7)	2291 (29.5)	2726 (46.2)	3166 (76.0)	3437 (98.3)
Males: 71 and over	1228 (38.5)	1347 (37.1)	1569 (35.4)	1836 (37.6)	2130 (43.0)	2420 (51.7)	2602 (57.6)
Males: 50 and over	1328 (30.8)	1494 (28.8)	1801 (25.7)	2181 (27.0)	2599 (40.0)	3015 (61.7)	3281 (79.9)
Males: 19 and over	1478 (19.5)	1674 (19.1)	2027 (19.4)	2468 (24.2)	2955 (32.8)	3434 (45.1)	3739 (53.7)
Females: 1-3	899 (29.4)	981 (27.6)	1140 (25.0)	1332 (26.5)	1548 (33.7)	1770 (47.1)	1911 (56.8)
Females: 4-8	1165 (36.4)	1262 (31.9)	1443 (25.0)	1667 (21.8)	1915 (32.5)	2164 (53.9)	2317 (69.8)
Females: 9-13	1261 (50.8)	1373 (43.3)	1584 (33.5)	1839 (31.7)	2113 (43.6)	2385 (65.0)	2551 (79.7)
Females: 14-18	1253 (99.8)	1362 (88.0)	1565 (66.5)	1805 (47.9)	2059 (55.4)	2311 (88.1)	2473 (113.3)
Females: 19-30	1206 (49.8)	1329 (42.8)	1554 (32.4)	1830 (28.5)	2137 (42.4)	2443 (65.5)	2631 (81.5)
Females: 31-50	1129 (47.9)	1264 (44.5)	1510 (37.3)	1809 (29.3)	2140 (29.3)	2469 (40.0)	2668 (50.3)
Females: 19-50	1153 (37.9)	1284 (33.3)	1526 (26.6)	1816 (20.4)	2138 (22.1)	2455 (32.9)	2654 (41.7)
Females: 51-70	1111 (34.3)	1223 (30.7)	1432 (24.4)	1688 (21.0)	1971 (27.9)	2259 (42.5)	2440 (52.2)
Females: 71 and over	941 (29.9)	1046 (26.0)	1240 (21.4)	1476 (22.8)	1735 (33.3)	1991 (48.3)	2152 (60.3)
Females: 50 and over	1044 (22.5)	1157 (19.8)	1366 (15.3)	1624 (15.2)	1907 (22.8)	2193 (34.3)	2376 (42.5)
Females: 19 and over	1100 (25.9)	1227 (23.1)	1453 (18.3)	1734 (14.1)	2045 (17.0)	2352 (25.6)	2551 (33.4)
All individuals 1 and over	1161 (16.4)	1313 (15.0)	1605 (12.8)	1992 (13.1)	2452 (19.5)	2919 (30.8)	3213 (38.4)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Protein (g/day)

Protein (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	31.1 (2.27)	35.1 (2.05)	42.5 (1.63)	51.5 (1.39)	61.2 (1.50)	70.8 (2.07)	76.8 (2.56)
Males: 4-8	41.0 (1.07)	44.6 (0.98)	51.2 (0.81)	59.3 (0.85)	68.4 (1.26)	77.6 (1.97)	83.4 (2.55)
Males: 9-13	60.3 (5.68)	63.6 (4.56)	69.7 (2.68)	76.8 (1.68)	84.3 (3.67)	91.4 (6.31)	95.9 (8.09)
Males: 14-18	60.2 (4.34)	66.6 (3.83)	78.7 (2.81)	93.3 (2.39)	109.6 (3.75)	126.0 (6.25)	136.2 (7.96)
Males: 19-30	65.9 (2.98)	73.0 (2.68)	85.8 (2.28)	101.7 (2.28)	119.2 (3.12)	136.3 (4.38)	147.0 (5.26)
Males: 31-50	67.1 (2.46)	74.5 (2.22)	87.7 (1.84)	103.8 (1.60)	121.6 (1.98)	139.1 (2.77)	149.9 (3.40)
Males: 19-50	66.3 (2.10)	73.7 (1.93)	87.0 (1.69)	103.1 (1.53)	120.6 (1.72)	137.7 (2.24)	148.8 (2.70)
Males: 51-70	55.7 (1.42)	62.6 (1.33)	75.5 (1.27)	91.5 (1.42)	109.4 (2.02)	127.7 (3.04)	139.0 (3.77)
Males: 71 and over	47.7 (1.73)	52.4 (1.69)	61.2 (1.64)	71.9 (1.74)	84.0 (2.06)	96.0 (2.64)	103.8 (3.07)
Males: 50 and over	51.7 (1.29)	58.4 (1.23)	71.0 (1.17)	86.7 (1.25)	104.1 (1.70)	121.4 (2.45)	132.6 (3.08)
Males: 19 and over	59.2 (1.22)	66.7 (1.18)	80.2 (1.09)	96.8 (1.03)	115.1 (1.08)	132.9 (1.31)	144.3 (1.53)
Females: 1-3	31.9 (1.44)	35.2 (1.33)	41.6 (1.16)	49.6 (1.17)	58.7 (1.45)	68.3 (2.06)	74.4 (2.47)
Females: 4-8	37.2 (1.58)	41.1 (1.37)	48.5 (1.15)	57.5 (1.15)	67.5 (1.60)	77.4 (2.31)	83.5 (2.82)
Females: 9-13	46.1 (2.20)	49.5 (1.92)	56.0 (1.47)	63.8 (1.30)	71.9 (1.84)	79.9 (2.81)	84.7 (3.49)
Females: 14-18	41.9 (4.01)	46.0 (3.62)	53.7 (2.77)	63.0 (1.85)	73.0 (1.67)	83.0 (2.79)	89.5 (3.79)
Females: 19-30	45.3 (2.31)	49.7 (2.00)	57.7 (1.52)	67.5 (1.13)	78.1 (1.32)	88.5 (1.99)	94.8 (2.49)
Females: 31-50	43.6 (2.30)	48.7 (2.04)	57.8 (1.52)	68.8 (1.05)	80.9 (1.33)	92.8 (2.27)	100.1 (2.98)
Females: 19-50	44.1 (1.69)	49.0 (1.47)	57.8 (1.05)	68.3 (0.73)	79.9 (1.03)	91.2 (1.79)	98.3 (2.31)
Females: 51-70	42.5 (1.65)	46.9 (1.52)	55.2 (1.25)	65.4 (1.12)	76.5 (1.54)	87.8 (2.35)	94.8 (2.94)
Females: 71 and over	35.3 (1.47)	39.6 (1.29)	47.4 (1.05)	57.0 (1.04)	67.7 (1.52)	78.3 (2.24)	85.0 (2.82)
Females: 50 and over	39.6 (1.31)	44.1 (1.20)	52.5 (0.94)	62.8 (0.80)	74.2 (1.09)	85.5 (1.76)	92.9 (2.24)
Females: 19 and over	42.0 (1.32)	46.8 (1.16)	55.4 (0.86)	66.0 (0.64)	77.6 (0.92)	89.0 (1.54)	96.4 (2.01)
All individuals 1 and over	43.2 (0.79)	49.0 (0.74)	60.2 (0.65)	75.4 (0.63)	93.7 (0.78)	112.1 (1.09)	123.4 (1.34)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Protein (g/day/kg body weight)

Protein (g/day/kg body weight): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	2.59 (0.189)	2.92 (0.171)	3.54 (0.136)	4.29 (0.116)	5.10 (0.125)	5.90 (0.172)	6.40 (0.213)
Males: 4-8	1.65 (0.055)	1.83 (0.052)	2.18 (0.047)	2.63 (0.054)	3.14 (0.080)	3.68 (0.124)	4.03 (0.165)
Males: 9-13	1.20 (0.059)	1.33 (0.052)	1.56 (0.045)	1.84 (0.049)	2.15 (0.067)	2.46 (0.093)	2.66 (0.113)
Males: 14-18	0.81 (0.065)	0.92 (0.059)	1.13 (0.047)	1.41 (0.039)	1.73 (0.057)	2.06 (0.099)	2.28 (0.129)
Males: 19-30	0.89 (0.040)	0.99 (0.036)	1.17 (0.030)	1.39 (0.029)	1.64 (0.039)	1.88 (0.057)	2.03 (0.070)
Males: 31-50	0.86 (0.032)	0.96 (0.029)	1.14 (0.024)	1.36 (0.020)	1.61 (0.026)	1.85 (0.037)	2.01 (0.046)
Males: 19-50	0.87 (0.029)	0.97 (0.026)	1.15 (0.022)	1.37 (0.019)	1.62 (0.021)	1.86 (0.029)	2.02 (0.037)
Males: 51-70	0.74 (0.020)	0.83 (0.018)	1.00 (0.017)	1.21 (0.018)	1.44 (0.027)	1.69 (0.042)	1.84 (0.053)
Males: 71 and over	0.67 (0.025)	0.73 (0.024)	0.85 (0.022)	0.99 (0.022)	1.15 (0.028)	1.32 (0.038)	1.42 (0.047)
Males: 50 and over	0.70 (0.019)	0.79 (0.017)	0.95 (0.016)	1.16 (0.016)	1.38 (0.022)	1.61 (0.033)	1.76 (0.042)
Males: 19 and over	0.79 (0.018)	0.89 (0.017)	1.07 (0.014)	1.29 (0.013)	1.54 (0.014)	1.78 (0.018)	1.94 (0.023)
Females: 1-3	2.66 (0.120)	2.93 (0.111)	3.47 (0.097)	4.13 (0.097)	4.89 (0.121)	5.69 (0.171)	6.20 (0.206)
Females: 4-8	1.55 (0.075)	1.74 (0.064)	2.10 (0.052)	2.54 (0.056)	3.04 (0.084)	3.55 (0.121)	3.86 (0.146)
Females: 9-13	0.89 (0.047)	1.01 (0.044)	1.24 (0.038)	1.53 (0.035)	1.85 (0.044)	2.18 (0.065)	2.39 (0.080)
Females: 14-18	0.66 (0.061)	0.74 (0.056)	0.90 (0.045)	1.09 (0.034)	1.30 (0.036)	1.51 (0.057)	1.65 (0.075)
Females: 19-30	0.69 (0.034)	0.77 (0.028)	0.92 (0.020)	1.09 (0.017)	1.29 (0.027)	1.49 (0.043)	1.61 (0.055)
Females: 31-50	0.67 (0.033)	0.76 (0.030)	0.91 (0.023)	1.09 (0.017)	1.29 (0.020)	1.49 (0.032)	1.61 (0.042)
Females: 19-50	0.68 (0.025)	0.76 (0.021)	0.91 (0.016)	1.09 (0.013)	1.29 (0.018)	1.49 (0.030)	1.61 (0.038)
Females: 51-70	0.66 (0.025)	0.73 (0.024)	0.87 (0.020)	1.04 (0.018)	1.22 (0.026)	1.42 (0.040)	1.54 (0.051)
Females: 71 and over	0.57 (0.022)	0.65 (0.020)	0.78 (0.017)	0.96 (0.018)	1.15 (0.027)	1.35 (0.039)	1.47 (0.048)
Females: 50 and over	0.63 (0.021)	0.70 (0.019)	0.84 (0.015)	1.01 (0.013)	1.20 (0.017)	1.40 (0.028)	1.52 (0.036)
Females: 19 and over	0.66 (0.020)	0.73 (0.018)	0.88 (0.013)	1.06 (0.010)	1.26 (0.015)	1.45 (0.025)	1.58 (0.032)
All individuals 1 and over	0.71 (0.014)	0.81 (0.013)	0.99 (0.011)	1.26 (0.009)	1.62 (0.013)	2.35 (0.026)	3.24 (0.040)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.
Body weights outside of normal range are set to the normal weight boundary fitting their height and age/sex for those under 19 and Body Mass Index cutoffs for those 19 and over.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data.
Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture.

Carbohydrate (g/day)

Carbohydrate (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	121 (4.2)	135 (3.8)	161 (3.3)	191 (3.7)	225 (4.6)	258 (5.9)	278 (7.0)
Males: 4-8	168 (4.1)	182 (3.7)	208 (3.4)	239 (3.7)	273 (4.8)	306 (6.6)	328 (8.0)
Males: 9-13	187 (7.6)	206 (6.5)	240 (5.0)	281 (4.9)	326 (7.4)	368 (11.2)	395 (14.1)
Males: 14-18	214 (9.9)	235 (9.0)	275 (7.5)	323 (7.7)	378 (10.8)	434 (16.5)	469 (20.2)
Males: 19-30	186 (7.4)	213 (7.1)	262 (7.0)	324 (7.4)	394 (8.8)	465 (11.1)	510 (12.8)
Males: 31-50	174 (4.4)	200 (3.9)	248 (3.4)	307 (3.9)	375 (6.1)	444 (9.1)	487 (11.4)
Males: 19-50	178 (3.2)	205 (3.0)	253 (3.1)	314 (4.0)	382 (5.4)	450 (7.1)	495 (8.4)
Males: 51-70	153 (6.3)	174 (5.6)	213 (4.3)	261 (3.8)	317 (6.1)	373 (10.3)	408 (13.3)
Males: 71 and over	142 (4.1)	158 (3.8)	188 (3.5)	224 (3.6)	265 (4.4)	305 (5.6)	331 (6.5)
Males: 50 and over	148 (4.8)	168 (4.2)	206 (3.3)	253 (3.1)	305 (5.1)	358 (8.3)	392 (10.9)
Males: 19 and over	163 (2.4)	187 (2.1)	232 (2.0)	290 (2.7)	355 (4.2)	420 (6.0)	462 (7.3)
Females: 1-3	113 (5.5)	125 (5.1)	148 (4.5)	177 (4.0)	209 (4.4)	244 (6.2)	265 (7.7)
Females: 4-8	155 (5.0)	169 (4.4)	195 (3.5)	228 (3.2)	263 (4.9)	298 (8.1)	320 (10.3)
Females: 9-13	166 (9.5)	182 (8.1)	212 (6.0)	249 (4.9)	289 (6.9)	329 (11.3)	353 (14.3)
Females: 14-18	159 (15.4)	175 (13.6)	205 (10.4)	240 (7.2)	277 (7.4)	314 (11.6)	337 (15.1)
Females: 19-30	145 (4.6)	162 (4.0)	193 (3.1)	232 (3.4)	277 (5.9)	322 (9.5)	351 (12.1)
Females: 31-50	131 (5.4)	149 (5.0)	183 (4.2)	225 (3.3)	272 (3.0)	320 (3.8)	349 (4.7)
Females: 19-50	135 (4.3)	153 (3.9)	186 (3.0)	227 (2.4)	274 (3.0)	320 (4.7)	350 (6.0)
Females: 51-70	124 (4.0)	140 (3.6)	169 (2.9)	206 (2.5)	246 (3.5)	287 (5.8)	313 (7.4)
Females: 71 and over	115 (3.4)	129 (3.0)	155 (2.5)	188 (3.0)	225 (4.6)	261 (6.9)	285 (8.6)
Females: 50 and over	121 (2.6)	136 (2.4)	165 (1.9)	200 (1.9)	240 (3.1)	280 (4.9)	306 (6.4)
Females: 19 and over	128 (2.7)	145 (2.4)	176 (1.9)	216 (1.6)	260 (2.1)	305 (3.5)	334 (4.6)
All individuals 1 and over	140 (1.9)	160 (1.7)	198 (1.4)	248 (1.3)	306 (2.1)	365 (3.6)	403 (4.6)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Total sugars (g/day)

Total sugars (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	62 (3.0)	70 (2.7)	85 (2.4)	104 (2.4)	125 (3.0)	147 (4.1)	160 (5.0)
Males: 4-8	78 (2.9)	86 (2.7)	101 (2.4)	120 (2.4)	141 (3.1)	162 (4.3)	175 (5.4)
Males: 9-13	85 (4.8)	95 (4.3)	113 (3.2)	135 (2.6)	160 (3.7)	183 (6.0)	198 (7.7)
Males: 14-18	86 (5.5)	99 (5.1)	124 (4.1)	156 (4.2)	192 (6.2)	230 (10.0)	254 (12.6)
Males: 19-30	63 (5.1)	77 (5.1)	105 (4.9)	143 (4.9)	189 (5.5)	238 (7.4)	271 (9.1)
Males: 31-50	51 (1.6)	65 (1.6)	92 (1.8)	130 (2.6)	178 (4.3)	229 (6.7)	263 (8.5)
Males: 19-50	55 (1.7)	69 (1.8)	97 (2.2)	135 (2.9)	182 (4.0)	232 (5.4)	266 (6.6)
Males: 51-70	45 (3.1)	56 (3.1)	78 (3.0)	109 (3.1)	147 (4.6)	190 (7.5)	218 (9.9)
Males: 71 and over	49 (1.9)	57 (1.9)	75 (2.0)	98 (2.3)	124 (3.1)	151 (4.2)	169 (5.1)
Males: 50 and over	45 (2.5)	56 (2.5)	77 (2.3)	106 (2.4)	142 (3.5)	181 (5.8)	207 (7.7)
Males: 19 and over	51 (1.5)	63 (1.6)	88 (1.7)	124 (2.2)	167 (3.2)	215 (4.7)	246 (5.9)
Females: 1-3	59 (2.9)	66 (2.8)	80 (2.5)	97 (2.2)	117 (2.3)	138 (3.5)	152 (4.5)
Females: 4-8	68 (3.6)	77 (3.2)	93 (2.6)	113 (2.0)	136 (2.3)	159 (3.9)	173 (5.2)
Females: 9-13	72 (5.2)	81 (4.5)	97 (3.3)	118 (2.7)	141 (4.5)	164 (8.0)	179 (10.5)
Females: 14-18	72 (9.5)	80 (8.4)	96 (6.5)	114 (4.6)	134 (4.8)	153 (7.6)	166 (10.0)
Females: 19-30	50 (2.7)	60 (2.6)	80 (2.3)	106 (2.4)	139 (4.1)	173 (7.1)	195 (9.4)
Females: 31-50	46 (1.9)	56 (1.9)	76 (1.8)	102 (1.7)	134 (2.3)	167 (3.4)	189 (4.3)
Females: 19-50	47 (1.4)	57 (1.3)	77 (1.2)	104 (1.4)	135 (2.5)	169 (4.1)	191 (5.3)
Females: 51-70	45 (2.0)	54 (2.0)	70 (1.8)	92 (1.7)	118 (2.1)	145 (3.5)	163 (4.6)
Females: 71 and over	42 (2.0)	49 (1.9)	64 (1.6)	83 (1.5)	106 (2.3)	129 (3.7)	144 (4.9)
Females: 50 and over	44 (1.1)	52 (1.2)	68 (1.0)	89 (1.1)	114 (1.8)	141 (2.9)	158 (3.9)
Females: 19 and over	46 (1.1)	55 (1.0)	73 (0.8)	97 (0.9)	127 (1.5)	157 (2.5)	178 (3.3)
All individuals 1 and over	51 (0.9)	62 (0.9)	83 (0.8)	112 (1.0)	147 (1.6)	185 (2.5)	210 (3.3)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Dietary fiber (g/day)

Dietary fiber (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	4.9 (0.25)	5.8 (0.24)	7.6 (0.23)	9.9 (0.25)	12.5 (0.34)	15.3 (0.51)	17.0 (0.65)
Males: 4-8	7.6 (0.47)	8.5 (0.43)	10.3 (0.34)	12.6 (0.28)	15.1 (0.33)	17.7 (0.45)	19.3 (0.57)
Males: 9-13	8.0 (0.37)	9.1 (0.33)	11.3 (0.29)	14.1 (0.36)	17.2 (0.61)	20.5 (0.93)	22.7 (1.19)
Males: 14-18	9.2 (0.75)	10.3 (0.69)	12.4 (0.58)	15.0 (0.52)	18.1 (0.65)	21.3 (0.98)	23.3 (1.23)
Males: 19-30	8.2 (0.45)	9.8 (0.41)	12.8 (0.37)	16.7 (0.47)	21.3 (0.78)	26.0 (1.19)	29.0 (1.48)
Males: 31-50	8.5 (0.47)	10.2 (0.45)	13.5 (0.42)	18.0 (0.48)	23.4 (0.75)	29.2 (1.18)	32.9 (1.51)
Males: 19-50	8.3 (0.34)	10.0 (0.33)	13.2 (0.33)	17.5 (0.40)	22.6 (0.62)	27.9 (0.93)	31.5 (1.19)
Males: 51-70	8.9 (0.34)	10.5 (0.35)	13.5 (0.38)	17.5 (0.45)	22.2 (0.62)	27.1 (0.88)	30.3 (1.09)
Males: 71 and over	7.9 (0.29)	9.4 (0.29)	12.3 (0.30)	16.1 (0.38)	20.7 (0.54)	25.6 (0.80)	28.9 (0.97)
Males: 50 and over	8.6 (0.25)	10.2 (0.26)	13.2 (0.29)	17.2 (0.37)	21.9 (0.53)	26.7 (0.76)	30.0 (0.95)
Males: 19 and over	8.5 (0.22)	10.1 (0.23)	13.2 (0.25)	17.4 (0.33)	22.4 (0.48)	27.5 (0.69)	31.0 (0.86)
Females: 1-3	4.6 (0.45)	5.4 (0.39)	7.1 (0.29)	9.2 (0.23)	11.6 (0.31)	14.1 (0.48)	15.7 (0.59)
Females: 4-8	7.9 (0.38)	8.7 (0.34)	10.2 (0.25)	12.0 (0.26)	14.1 (0.41)	16.2 (0.66)	17.5 (0.84)
Females: 9-13	8.4 (0.44)	9.2 (0.41)	10.9 (0.37)	13.1 (0.40)	15.6 (0.54)	18.1 (0.76)	19.7 (0.92)
Females: 14-18	6.6 (0.57)	7.6 (0.52)	9.7 (0.44)	12.2 (0.39)	15.1 (0.49)	18.2 (0.73)	20.2 (0.92)
Females: 19-30	6.4 (0.80)	7.6 (0.72)	9.9 (0.57)	12.8 (0.41)	16.3 (0.48)	19.8 (0.78)	22.1 (1.02)
Females: 31-50	6.5 (0.48)	7.9 (0.48)	10.6 (0.46)	14.1 (0.42)	18.4 (0.43)	23.0 (0.55)	25.9 (0.67)
Females: 19-50	6.4 (0.48)	7.7 (0.46)	10.3 (0.40)	13.7 (0.34)	17.7 (0.36)	21.9 (0.50)	24.7 (0.63)
Females: 51-70	8.0 (0.29)	9.3 (0.28)	11.9 (0.27)	15.3 (0.32)	19.2 (0.49)	23.3 (0.74)	25.9 (0.93)
Females: 71 and over	7.2 (0.24)	8.4 (0.21)	10.7 (0.19)	13.9 (0.26)	17.6 (0.40)	21.4 (0.57)	24.0 (0.70)
Females: 50 and over	7.7 (0.20)	9.0 (0.19)	11.5 (0.20)	14.8 (0.26)	18.7 (0.41)	22.8 (0.61)	25.4 (0.76)
Females: 19 and over	6.9 (0.33)	8.2 (0.31)	10.8 (0.28)	14.2 (0.26)	18.2 (0.28)	22.4 (0.36)	25.1 (0.43)
All individuals 1 and over	7.1 (0.18)	8.4 (0.18)	11.2 (0.19)	14.8 (0.22)	19.2 (0.29)	23.7 (0.39)	26.7 (0.48)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Total fat (g/day)

Total fat (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	31.0 (1.92)	34.7 (1.74)	41.6 (1.43)	49.9 (1.30)	58.9 (1.48)	67.8 (1.96)	73.3 (2.36)
Males: 4-8	43.4 (1.74)	47.3 (1.56)	54.5 (1.23)	63.2 (1.08)	72.9 (1.46)	82.7 (2.25)	88.9 (2.87)
Males: 9-13	51.6 (2.75)	56.5 (2.46)	65.5 (1.94)	76.6 (1.74)	88.8 (2.35)	101.0 (3.51)	108.9 (4.44)
Males: 14-18	61.6 (4.99)	67.4 (4.41)	78.3 (3.26)	91.6 (2.69)	106.6 (4.01)	122.0 (6.59)	131.6 (8.42)
Males: 19-30	50.8 (2.98)	58.6 (2.76)	73.4 (2.38)	92.3 (2.20)	113.9 (2.89)	135.7 (4.24)	149.6 (5.35)
Males: 31-50	55.5 (1.74)	63.9 (1.68)	79.5 (1.70)	99.3 (1.96)	122.1 (2.60)	145.4 (3.50)	160.0 (4.09)
Males: 19-50	53.3 (1.81)	61.7 (1.76)	77.2 (1.66)	96.8 (1.70)	118.9 (2.03)	141.3 (2.58)	156.1 (3.12)
Males: 51-70	47.1 (1.58)	54.7 (1.52)	69.3 (1.44)	88.1 (1.41)	109.8 (2.01)	132.4 (3.26)	146.6 (4.25)
Males: 71 and over	40.6 (2.11)	45.8 (2.03)	56.0 (1.86)	68.7 (1.82)	83.2 (2.04)	98.1 (2.63)	107.7 (3.16)
Males: 50 and over	44.2 (1.36)	51.4 (1.33)	65.5 (1.23)	83.4 (1.24)	103.9 (1.72)	125.1 (2.67)	138.9 (3.54)
Males: 19 and over	49.2 (1.13)	57.3 (1.14)	72.2 (1.14)	91.5 (1.20)	113.7 (1.40)	136.1 (1.80)	150.8 (2.11)
Females: 1-3	31.0 (1.08)	34.3 (1.00)	40.6 (0.85)	48.5 (0.96)	57.5 (1.43)	66.8 (2.22)	72.8 (2.79)
Females: 4-8	41.0 (1.64)	44.9 (1.48)	52.1 (1.21)	61.0 (1.10)	70.7 (1.55)	80.5 (2.41)	86.5 (3.04)
Females: 9-13	41.9 (2.11)	46.6 (1.87)	55.8 (1.49)	67.2 (1.38)	79.9 (1.91)	92.8 (3.00)	100.7 (3.81)
Females: 14-18	45.4 (4.55)	49.6 (4.05)	57.5 (3.01)	67.1 (2.02)	77.5 (2.42)	87.9 (4.19)	94.7 (5.57)
Females: 19-30	38.1 (2.44)	43.6 (2.18)	53.8 (1.75)	66.5 (1.52)	80.9 (2.02)	95.2 (3.04)	104.1 (3.75)
Females: 31-50	37.9 (2.02)	43.4 (1.87)	53.8 (1.58)	66.8 (1.34)	81.6 (1.72)	96.6 (2.64)	105.9 (3.36)
Females: 19-50	38.0 (1.61)	43.5 (1.46)	53.9 (1.20)	66.7 (0.98)	81.3 (1.16)	95.8 (1.78)	105.2 (2.30)
Females: 51-70	38.2 (1.40)	43.1 (1.28)	52.6 (1.12)	64.8 (1.07)	78.7 (1.36)	93.5 (1.99)	102.9 (2.46)
Females: 71 and over	32.2 (1.58)	36.5 (1.40)	44.7 (1.11)	55.0 (0.99)	66.7 (1.46)	78.6 (2.30)	86.2 (3.00)
Females: 50 and over	35.7 (0.98)	40.5 (0.90)	49.9 (0.76)	61.8 (0.75)	75.4 (1.03)	89.7 (1.52)	99.1 (1.89)
Females: 19 and over	37.0 (1.15)	42.3 (1.06)	52.2 (0.88)	64.7 (0.72)	78.9 (0.82)	93.3 (1.22)	102.7 (1.59)
All individuals 1 and over	39.3 (0.68)	45.6 (0.67)	57.8 (0.63)	74.0 (0.65)	93.2 (0.86)	113.2 (1.23)	126.1 (1.50)

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Saturated fat (g/day)

Saturated fat (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	11.3 (0.77)	12.8 (0.72)	15.5 (0.63)	18.9 (0.60)	22.6 (0.67)	26.3 (0.85)	28.6 (1.01)
Males: 4-8	14.2 (0.61)	15.8 (0.55)	18.7 (0.44)	22.3 (0.41)	26.4 (0.59)	30.6 (0.93)	33.3 (1.18)
Males: 9-13	17.4 (0.99)	19.2 (0.90)	22.6 (0.73)	26.8 (0.71)	31.4 (1.00)	36.1 (1.52)	39.1 (1.91)
Males: 14-18	19.7 (1.64)	21.9 (1.46)	26.2 (1.10)	31.4 (0.98)	37.4 (1.52)	43.6 (2.52)	47.5 (3.22)
Males: 19-30	15.4 (0.94)	18.1 (0.92)	23.4 (0.87)	30.3 (0.86)	38.4 (1.03)	46.7 (1.40)	52.1 (1.74)
Males: 31-50	17.0 (0.63)	19.9 (0.61)	25.4 (0.61)	32.6 (0.72)	41.0 (1.01)	49.7 (1.45)	55.3 (1.75)
Males: 19-50	16.2 (0.63)	19.2 (0.63)	24.7 (0.63)	31.8 (0.67)	40.0 (0.81)	48.4 (1.04)	54.0 (1.26)
Males: 51-70	13.7 (0.53)	16.3 (0.53)	21.5 (0.54)	28.4 (0.58)	36.7 (0.84)	45.6 (1.37)	51.3 (1.79)
Males: 71 and over	12.6 (0.73)	14.3 (0.72)	17.7 (0.68)	22.0 (0.68)	27.0 (0.76)	32.2 (0.96)	35.5 (1.13)
Males: 50 and over	13.0 (0.50)	15.5 (0.50)	20.4 (0.48)	26.8 (0.50)	34.5 (0.71)	42.5 (1.10)	47.9 (1.46)
Males: 19 and over	14.8 (0.41)	17.6 (0.42)	22.8 (0.44)	29.8 (0.47)	38.1 (0.56)	46.5 (0.72)	52.2 (0.86)
Females: 1-3	11.5 (0.54)	12.8 (0.51)	15.4 (0.43)	18.6 (0.44)	22.3 (0.63)	26.2 (0.97)	28.7 (1.22)
Females: 4-8	14.3 (0.73)	15.7 (0.64)	18.3 (0.49)	21.6 (0.47)	25.2 (0.76)	28.9 (1.25)	31.1 (1.59)
Females: 9-13	14.3 (0.78)	16.0 (0.69)	19.2 (0.54)	23.3 (0.53)	27.9 (0.78)	32.6 (1.23)	35.5 (1.56)
Females: 14-18	14.6 (1.61)	16.1 (1.43)	19.0 (1.05)	22.6 (0.66)	26.4 (0.87)	30.4 (1.64)	33.0 (2.22)
Females: 19-30	12.0 (1.19)	13.9 (1.09)	17.5 (0.87)	22.1 (0.62)	27.4 (0.73)	32.8 (1.26)	36.2 (1.69)
Females: 31-50	11.5 (0.59)	13.4 (0.54)	17.1 (0.46)	21.8 (0.42)	27.3 (0.63)	33.1 (1.00)	36.7 (1.27)
Females: 19-50	11.7 (0.54)	13.6 (0.49)	17.3 (0.39)	21.9 (0.30)	27.3 (0.42)	32.9 (0.73)	36.5 (0.97)
Females: 51-70	11.3 (0.65)	13.0 (0.61)	16.4 (0.53)	20.8 (0.45)	26.0 (0.50)	31.6 (0.78)	35.2 (1.01)
Females: 71 and over	9.9 (0.54)	11.4 (0.47)	14.2 (0.38)	17.9 (0.33)	22.2 (0.51)	26.7 (0.86)	29.6 (1.14)
Females: 50 and over	10.7 (0.44)	12.4 (0.42)	15.6 (0.37)	19.9 (0.32)	24.9 (0.38)	30.3 (0.58)	33.8 (0.77)
Females: 19 and over	11.3 (0.42)	13.1 (0.39)	16.6 (0.33)	21.1 (0.27)	26.4 (0.29)	31.8 (0.46)	35.5 (0.62)
All individuals 1 and over	12.4 (0.23)	14.6 (0.23)	18.9 (0.23)	24.6 (0.25)	31.5 (0.33)	38.7 (0.46)	43.5 (0.56)

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Monounsaturated fat (g/day)

Monounsaturated fat (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	10.3 (0.60)	11.7 (0.55)	14.3 (0.47)	17.5 (0.47)	21.0 (0.57)	24.6 (0.78)	26.8 (0.93)
Males: 4-8	15.9 (0.66)	17.3 (0.59)	19.8 (0.48)	22.9 (0.44)	26.4 (0.57)	29.9 (0.85)	32.1 (1.06)
Males: 9-13	19.0 (1.24)	20.7 (1.08)	23.9 (0.79)	27.8 (0.61)	32.1 (0.88)	36.3 (1.41)	39.1 (1.83)
Males: 14-18	22.3 (1.97)	24.5 (1.72)	28.5 (1.24)	33.5 (1.02)	39.2 (1.63)	45.0 (2.74)	48.6 (3.52)
Males: 19-30	18.3 (1.17)	21.2 (1.09)	26.6 (0.94)	33.6 (0.86)	41.6 (1.09)	49.6 (1.58)	54.8 (1.98)
Males: 31-50	20.6 (0.67)	23.7 (0.65)	29.6 (0.64)	37.0 (0.74)	45.5 (1.01)	54.3 (1.39)	59.8 (1.66)
Males: 19-50	19.6 (0.71)	22.6 (0.68)	28.4 (0.62)	35.7 (0.63)	44.0 (0.78)	52.4 (1.04)	58.0 (1.29)
Males: 51-70	17.5 (0.67)	20.3 (0.65)	25.7 (0.59)	32.6 (0.52)	40.7 (0.74)	49.1 (1.25)	54.4 (1.66)
Males: 71 and over	14.4 (0.68)	16.4 (0.66)	20.4 (0.63)	25.5 (0.67)	31.4 (0.79)	37.6 (1.03)	41.7 (1.24)
Males: 50 and over	16.3 (0.56)	19.0 (0.55)	24.2 (0.49)	30.9 (0.46)	38.6 (0.64)	46.6 (1.05)	51.9 (1.42)
Males: 19 and over	18.1 (0.45)	21.1 (0.44)	26.6 (0.43)	33.8 (0.43)	42.2 (0.51)	50.6 (0.68)	56.1 (0.82)
Females: 1-3	10.5 (0.45)	11.7 (0.42)	14.0 (0.36)	16.8 (0.33)	20.2 (0.44)	23.7 (0.68)	25.9 (0.88)
Females: 4-8	14.2 (0.65)	15.7 (0.60)	18.4 (0.50)	21.9 (0.44)	25.7 (0.57)	29.5 (0.88)	31.9 (1.11)
Females: 9-13	14.9 (0.77)	16.7 (0.67)	20.0 (0.52)	24.2 (0.49)	28.9 (0.76)	33.7 (1.25)	36.6 (1.59)
Females: 14-18	16.0 (1.46)	17.5 (1.32)	20.5 (1.05)	24.2 (0.85)	28.1 (1.09)	32.2 (1.69)	34.8 (2.17)
Females: 19-30	13.2 (0.87)	15.2 (0.80)	19.0 (0.67)	23.8 (0.59)	29.2 (0.70)	34.7 (0.97)	38.1 (1.16)
Females: 31-50	13.2 (0.74)	15.3 (0.68)	19.2 (0.59)	24.1 (0.53)	29.7 (0.69)	35.5 (1.02)	39.1 (1.29)
Females: 19-50	13.2 (0.59)	15.3 (0.54)	19.2 (0.46)	24.0 (0.39)	29.5 (0.46)	35.1 (0.68)	38.8 (0.88)
Females: 51-70	13.6 (0.52)	15.4 (0.49)	18.9 (0.44)	23.4 (0.43)	28.5 (0.57)	33.9 (0.85)	37.3 (1.05)
Females: 71 and over	11.6 (0.62)	13.2 (0.54)	16.0 (0.43)	19.7 (0.39)	23.8 (0.57)	28.0 (0.90)	30.7 (1.17)
Females: 50 and over	12.7 (0.37)	14.5 (0.35)	17.9 (0.30)	22.2 (0.31)	27.2 (0.42)	32.4 (0.64)	35.8 (0.79)
Females: 19 and over	13.0 (0.43)	15.0 (0.40)	18.6 (0.33)	23.2 (0.27)	28.6 (0.32)	34.0 (0.48)	37.6 (0.63)
All individuals 1 and over	13.9 (0.26)	16.3 (0.25)	20.8 (0.24)	26.9 (0.24)	34.2 (0.33)	41.8 (0.47)	46.7 (0.58)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Polyunsaturated fat (g/day)

Polyunsaturated fat (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	5.0 (0.27)	5.7 (0.25)	7.1 (0.23)	9.0 (0.23)	11.1 (0.31)	13.3 (0.48)	14.8 (0.63)
Males: 4-8	8.5 (0.59)	9.3 (0.50)	10.7 (0.32)	12.5 (0.22)	14.6 (0.50)	16.6 (0.94)	17.9 (1.26)
Males: 9-13	9.3 (0.60)	10.5 (0.55)	12.6 (0.48)	15.3 (0.54)	18.4 (0.81)	21.5 (1.20)	23.7 (1.51)
Males: 14-18	12.6 (1.25)	13.7 (1.12)	15.9 (0.86)	18.5 (0.65)	21.5 (0.83)	24.6 (1.35)	26.6 (1.76)
Males: 19-30	11.3 (0.86)	12.9 (0.77)	16.0 (0.61)	19.9 (0.52)	24.5 (0.79)	29.1 (1.30)	32.1 (1.69)
Males: 31-50	11.5 (0.49)	13.2 (0.46)	16.4 (0.42)	20.6 (0.44)	25.6 (0.61)	30.8 (0.92)	34.2 (1.14)
Males: 19-50	11.4 (0.53)	13.1 (0.49)	16.3 (0.42)	20.4 (0.38)	25.1 (0.48)	30.0 (0.71)	33.3 (0.93)
Males: 51-70	10.6 (0.44)	12.1 (0.41)	15.1 (0.34)	19.0 (0.33)	23.6 (0.52)	28.4 (0.86)	31.5 (1.11)
Males: 71 and over	8.1 (0.53)	9.3 (0.51)	11.7 (0.45)	14.8 (0.41)	18.6 (0.49)	22.6 (0.75)	25.3 (0.97)
Males: 50 and over	9.7 (0.33)	11.2 (0.30)	14.2 (0.26)	18.0 (0.26)	22.5 (0.42)	27.2 (0.69)	30.3 (0.92)
Males: 19 and over	10.7 (0.33)	12.3 (0.31)	15.4 (0.29)	19.5 (0.28)	24.2 (0.37)	29.1 (0.56)	32.4 (0.70)
Females: 1-3	4.9 (0.28)	5.6 (0.26)	7.0 (0.23)	8.7 (0.25)	10.8 (0.39)	13.1 (0.63)	14.6 (0.82)
Females: 4-8	7.8 (0.32)	8.7 (0.30)	10.3 (0.26)	12.3 (0.29)	14.6 (0.41)	16.8 (0.61)	18.3 (0.75)
Females: 9-13	8.4 (0.62)	9.4 (0.57)	11.4 (0.45)	13.9 (0.36)	16.8 (0.47)	19.8 (0.83)	21.8 (1.10)
Females: 14-18	9.0 (1.06)	10.1 (0.97)	12.1 (0.77)	14.6 (0.55)	17.4 (0.61)	20.2 (1.03)	22.2 (1.38)
Females: 19-30	8.5 (0.56)	9.6 (0.52)	11.8 (0.44)	14.6 (0.40)	17.7 (0.54)	21.0 (0.80)	23.0 (0.99)
Females: 31-50	8.6 (0.61)	9.8 (0.57)	12.0 (0.47)	14.8 (0.36)	18.1 (0.39)	21.5 (0.62)	23.6 (0.81)
Females: 19-50	8.5 (0.48)	9.7 (0.44)	12.0 (0.38)	14.7 (0.30)	18.0 (0.31)	21.2 (0.45)	23.4 (0.59)
Females: 51-70	8.5 (0.28)	9.7 (0.25)	11.9 (0.20)	14.8 (0.23)	18.2 (0.40)	21.8 (0.65)	24.2 (0.83)
Females: 71 and over	6.4 (0.39)	7.5 (0.37)	9.6 (0.32)	12.3 (0.27)	15.6 (0.34)	19.1 (0.54)	21.4 (0.73)
Females: 50 and over	7.7 (0.25)	8.9 (0.22)	11.1 (0.16)	14.0 (0.16)	17.5 (0.30)	21.2 (0.52)	23.6 (0.68)
Females: 19 and over	8.2 (0.31)	9.4 (0.28)	11.6 (0.23)	14.4 (0.20)	17.8 (0.25)	21.2 (0.40)	23.5 (0.52)
All individuals 1 and over	8.3 (0.16)	9.7 (0.16)	12.3 (0.15)	15.9 (0.16)	20.1 (0.22)	24.4 (0.32)	27.4 (0.40)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

PFA 18:2 (g/day)

PFA 18:2 (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	4.2 (0.24)	4.9 (0.23)	6.2 (0.21)	7.9 (0.21)	9.8 (0.28)	11.9 (0.45)	13.3 (0.59)
Males: 4-8	7.5 (0.55)	8.2 (0.47)	9.5 (0.31)	11.2 (0.20)	13.1 (0.46)	15.0 (0.86)	16.2 (1.17)
Males: 9-13	8.1 (0.51)	9.1 (0.47)	11.1 (0.42)	13.6 (0.49)	16.5 (0.76)	19.5 (1.12)	21.5 (1.41)
Males: 14-18	11.2 (1.13)	12.2 (1.02)	14.1 (0.77)	16.5 (0.59)	19.2 (0.75)	22.0 (1.23)	23.8 (1.61)
Males: 19-30	10.0 (0.77)	11.4 (0.69)	14.1 (0.54)	17.5 (0.46)	21.6 (0.71)	25.7 (1.18)	28.4 (1.54)
Males: 31-50	10.0 (0.45)	11.5 (0.42)	14.4 (0.39)	18.2 (0.40)	22.7 (0.55)	27.5 (0.83)	30.5 (1.03)
Males: 19-50	9.9 (0.47)	11.5 (0.44)	14.3 (0.38)	18.0 (0.35)	22.3 (0.43)	26.7 (0.64)	29.7 (0.83)
Males: 51-70	9.0 (0.37)	10.5 (0.34)	13.2 (0.29)	16.7 (0.29)	20.9 (0.46)	25.3 (0.77)	28.1 (0.99)
Males: 71 and over	6.9 (0.46)	8.0 (0.44)	10.2 (0.39)	13.0 (0.37)	16.4 (0.44)	20.0 (0.67)	22.4 (0.86)
Males: 50 and over	8.3 (0.28)	9.7 (0.26)	12.3 (0.23)	15.8 (0.24)	19.9 (0.37)	24.2 (0.61)	27.0 (0.81)
Males: 19 and over	9.3 (0.29)	10.7 (0.27)	13.5 (0.25)	17.1 (0.25)	21.4 (0.33)	25.9 (0.49)	28.8 (0.62)
Females: 1-3	4.2 (0.26)	4.8 (0.25)	6.0 (0.22)	7.6 (0.23)	9.5 (0.34)	11.7 (0.56)	13.1 (0.74)
Females: 4-8	6.9 (0.30)	7.7 (0.28)	9.1 (0.24)	11.0 (0.26)	13.1 (0.39)	15.2 (0.59)	16.5 (0.73)
Females: 9-13	7.3 (0.57)	8.2 (0.53)	10.0 (0.43)	12.4 (0.33)	15.1 (0.43)	17.9 (0.75)	19.7 (1.00)
Females: 14-18	8.0 (0.97)	8.9 (0.89)	10.8 (0.71)	13.0 (0.52)	15.6 (0.58)	18.2 (0.96)	19.9 (1.29)
Females: 19-30	7.4 (0.49)	8.4 (0.45)	10.4 (0.38)	12.9 (0.36)	15.7 (0.49)	18.6 (0.72)	20.5 (0.88)
Females: 31-50	7.5 (0.54)	8.5 (0.50)	10.6 (0.42)	13.1 (0.32)	16.1 (0.35)	19.1 (0.55)	21.1 (0.72)
Females: 19-50	7.4 (0.43)	8.5 (0.40)	10.5 (0.34)	13.0 (0.28)	15.9 (0.28)	18.9 (0.40)	20.9 (0.52)
Females: 51-70	7.3 (0.24)	8.4 (0.21)	10.4 (0.17)	13.0 (0.21)	16.1 (0.36)	19.4 (0.58)	21.5 (0.75)
Females: 71 and over	5.6 (0.35)	6.5 (0.33)	8.4 (0.29)	10.8 (0.24)	13.7 (0.30)	16.8 (0.47)	18.8 (0.64)
Females: 50 and over	6.7 (0.22)	7.7 (0.20)	9.7 (0.15)	12.3 (0.14)	15.4 (0.26)	18.7 (0.46)	21.0 (0.61)
Females: 19 and over	7.1 (0.27)	8.2 (0.25)	10.1 (0.21)	12.7 (0.18)	15.7 (0.22)	18.9 (0.34)	20.9 (0.45)
All individuals 1 and over	7.2 (0.15)	8.4 (0.15)	10.8 (0.14)	14.0 (0.15)	17.8 (0.20)	21.7 (0.28)	24.4 (0.35)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

PFA 18:3 (g/day)

PFA 18:3 (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	0.49 (0.025)	0.55 (0.023)	0.67 (0.019)	0.82 (0.018)	0.98 (0.021)	1.15 (0.031)	1.25 (0.039)
Males: 4-8	0.65 (0.042)	0.72 (0.037)	0.84 (0.028)	1.00 (0.023)	1.18 (0.037)	1.37 (0.063)	1.49 (0.085)
Males: 9-13	0.74 (0.066)	0.83 (0.060)	1.00 (0.047)	1.21 (0.043)	1.46 (0.068)	1.71 (0.111)	1.89 (0.147)
Males: 14-18	0.89 (0.064)	0.99 (0.062)	1.19 (0.055)	1.45 (0.056)	1.76 (0.076)	2.09 (0.112)	2.31 (0.142)
Males: 19-30	0.87 (0.067)	1.02 (0.063)	1.31 (0.055)	1.69 (0.050)	2.16 (0.069)	2.64 (0.111)	2.96 (0.146)
Males: 31-50	0.95 (0.051)	1.09 (0.048)	1.36 (0.041)	1.72 (0.039)	2.15 (0.056)	2.61 (0.091)	2.91 (0.119)
Males: 19-50	0.91 (0.050)	1.06 (0.048)	1.34 (0.041)	1.71 (0.035)	2.15 (0.045)	2.61 (0.072)	2.92 (0.096)
Males: 51-70	0.98 (0.046)	1.11 (0.041)	1.37 (0.034)	1.70 (0.036)	2.10 (0.062)	2.52 (0.103)	2.78 (0.133)
Males: 71 and over	0.76 (0.062)	0.86 (0.060)	1.07 (0.051)	1.34 (0.042)	1.67 (0.047)	2.04 (0.082)	2.29 (0.116)
Males: 50 and over	0.91 (0.035)	1.04 (0.032)	1.29 (0.025)	1.62 (0.027)	2.00 (0.049)	2.41 (0.083)	2.68 (0.110)
Males: 19 and over	0.92 (0.034)	1.05 (0.032)	1.32 (0.029)	1.68 (0.028)	2.10 (0.038)	2.54 (0.060)	2.84 (0.077)
Females: 1-3	0.47 (0.027)	0.53 (0.027)	0.66 (0.026)	0.82 (0.029)	1.02 (0.038)	1.24 (0.056)	1.38 (0.071)
Females: 4-8	0.68 (0.044)	0.74 (0.038)	0.85 (0.027)	0.99 (0.022)	1.15 (0.039)	1.30 (0.066)	1.40 (0.085)
Females: 9-13	0.65 (0.041)	0.73 (0.037)	0.89 (0.031)	1.10 (0.034)	1.33 (0.051)	1.59 (0.081)	1.75 (0.101)
Females: 14-18	0.66 (0.074)	0.75 (0.068)	0.93 (0.054)	1.16 (0.039)	1.43 (0.044)	1.71 (0.078)	1.91 (0.106)
Females: 19-30	0.75 (0.068)	0.85 (0.062)	1.04 (0.049)	1.28 (0.037)	1.56 (0.051)	1.86 (0.087)	2.04 (0.113)
Females: 31-50	0.75 (0.064)	0.85 (0.060)	1.04 (0.051)	1.28 (0.039)	1.56 (0.039)	1.86 (0.058)	2.05 (0.076)
Females: 19-50	0.75 (0.047)	0.85 (0.044)	1.04 (0.037)	1.28 (0.029)	1.56 (0.030)	1.85 (0.046)	2.04 (0.061)
Females: 51-70	0.81 (0.044)	0.91 (0.040)	1.10 (0.032)	1.35 (0.028)	1.64 (0.041)	1.96 (0.069)	2.18 (0.091)
Females: 71 and over	0.57 (0.039)	0.67 (0.037)	0.87 (0.032)	1.15 (0.029)	1.51 (0.045)	1.91 (0.083)	2.19 (0.116)
Females: 50 and over	0.72 (0.032)	0.82 (0.029)	1.02 (0.022)	1.29 (0.021)	1.61 (0.035)	1.96 (0.061)	2.21 (0.082)
Females: 19 and over	0.74 (0.031)	0.84 (0.029)	1.03 (0.024)	1.28 (0.020)	1.59 (0.027)	1.91 (0.043)	2.12 (0.058)
All individuals 1 and over	0.72 (0.018)	0.83 (0.018)	1.06 (0.016)	1.36 (0.016)	1.73 (0.022)	2.12 (0.033)	2.38 (0.043)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Cholesterol (mg/day)

Cholesterol (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	72 (5.7)	87 (5.6)	117 (5.5)	158 (6.4)	209 (9.2)	266 (14.5)	305 (18.6)
Males: 4-8	107 (8.4)	120 (8.2)	146 (7.3)	181 (6.5)	224 (7.5)	272 (12.1)	305 (16.2)
Males: 9-13	127 (10.0)	145 (9.2)	181 (8.1)	227 (8.4)	281 (12.3)	338 (18.8)	376 (24.0)
Males: 14-18	182 (25.6)	202 (22.8)	241 (17.1)	290 (12.5)	346 (17.4)	405 (30.8)	442 (40.7)
Males: 19-30	180 (14.4)	207 (13.2)	260 (11.0)	330 (9.9)	414 (14.9)	501 (24.2)	559 (31.6)
Males: 31-50	190 (10.9)	220 (10.2)	278 (8.7)	355 (7.6)	446 (10.8)	543 (18.6)	606 (25.0)
Males: 19-50	185 (9.6)	215 (9.2)	272 (8.1)	346 (7.1)	433 (8.8)	525 (13.8)	587 (18.6)
Males: 51-70	147 (8.5)	177 (8.3)	236 (7.8)	317 (7.8)	415 (10.3)	522 (16.2)	591 (20.7)
Males: 71 and over	120 (8.8)	143 (9.2)	192 (9.2)	258 (10.1)	342 (13.3)	434 (18.9)	498 (24.1)
Males: 50 and over	137 (7.0)	166 (6.8)	224 (6.2)	302 (6.0)	398 (8.3)	502 (13.1)	573 (17.0)
Males: 19 and over	165 (5.7)	194 (5.4)	251 (4.9)	329 (4.8)	422 (6.9)	521 (11.0)	588 (14.5)
Females: 1-3	79 (9.1)	91 (8.3)	119 (6.5)	156 (4.3)	204 (7.1)	260 (14.9)	299 (20.9)
Females: 4-8	123 (13.4)	133 (11.8)	152 (8.6)	176 (5.6)	203 (7.8)	231 (14.3)	248 (19.1)
Females: 9-13	111 (7.7)	126 (7.0)	157 (5.6)	196 (5.8)	242 (10.0)	291 (16.7)	323 (21.5)
Females: 14-18	120 (19.3)	134 (17.4)	162 (13.0)	197 (8.1)	237 (10.2)	279 (20.2)	307 (28.3)
Females: 19-30	99 (16.3)	118 (15.0)	156 (11.8)	206 (7.9)	268 (10.8)	334 (20.7)	376 (28.4)
Females: 31-50	123 (9.4)	141 (8.7)	178 (7.2)	225 (5.9)	282 (8.2)	342 (13.7)	380 (18.0)
Females: 19-50	113 (9.0)	132 (8.2)	170 (6.5)	219 (4.9)	277 (6.9)	339 (12.6)	381 (16.9)
Females: 51-70	105 (7.4)	124 (7.3)	163 (7.1)	215 (8.0)	278 (11.2)	347 (16.7)	393 (20.8)
Females: 71 and over	97 (6.0)	113 (5.5)	143 (4.9)	183 (4.8)	230 (6.8)	280 (10.5)	313 (13.7)
Females: 50 and over	101 (5.4)	119 (5.2)	156 (4.9)	205 (5.2)	264 (7.4)	328 (11.4)	372 (14.5)
Females: 19 and over	108 (6.3)	127 (5.9)	163 (4.9)	213 (4.3)	272 (6.0)	335 (10.0)	378 (13.2)
All individuals 1 and over	115 (3.8)	137 (3.7)	182 (3.3)	246 (3.3)	326 (5.0)	414 (8.2)	473 (10.9)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Moisture (g/day)

Moisture (g/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	821 (36.6)	916 (32.1)	1098 (25.4)	1327 (24.2)	1589 (33.2)	1862 (50.5)	2037 (63.8)
Males: 4-8	898 (28.6)	987 (26.7)	1157 (22.2)	1378 (22.2)	1643 (33.5)	1926 (55.0)	2117 (72.2)
Males: 9-13	1122 (49.9)	1251 (43.3)	1494 (32.8)	1806 (40.6)	2164 (73.7)	2532 (118.9)	2778 (154.8)
Males: 14-18	1397 (67.5)	1585 (65.4)	1970 (62.8)	2486 (79.6)	3142 (129.0)	3885 (210.0)	4392 (272.6)
Males: 19-30	1776 (88.5)	2038 (86.6)	2553 (85.4)	3264 (91.5)	4154 (122.8)	5129 (177.8)	5799 (227.6)
Males: 31-50	2014 (58.2)	2296 (57.9)	2828 (58.8)	3511 (63.1)	4312 (79.9)	5148 (110.0)	5681 (138.2)
Males: 19-50	1911 (49.9)	2190 (51.3)	2723 (53.9)	3426 (61.6)	4252 (79.0)	5123 (110.0)	5719 (134.3)
Males: 51-70	1779 (43.9)	2023 (45.0)	2499 (49.5)	3130 (57.3)	3886 (74.8)	4706 (106.1)	5240 (128.9)
Males: 71 and over	1418 (54.6)	1580 (52.3)	1896 (47.6)	2297 (44.7)	2764 (52.7)	3250 (76.2)	3570 (96.1)
Males: 50 and over	1604 (29.2)	1841 (30.1)	2306 (33.7)	2920 (43.3)	3647 (61.7)	4415 (87.0)	4937 (109.2)
Males: 19 and over	1769 (30.1)	2037 (32.9)	2547 (37.0)	3227 (43.4)	4037 (54.6)	4887 (76.1)	5463 (92.8)
Females: 1-3	852 (21.3)	934 (21.1)	1094 (21.8)	1288 (25.7)	1505 (33.1)	1729 (45.1)	1870 (52.8)
Females: 4-8	901 (34.7)	987 (32.7)	1152 (29.3)	1365 (29.8)	1609 (39.1)	1864 (61.0)	2025 (77.4)
Females: 9-13	1061 (33.3)	1156 (29.0)	1345 (24.0)	1590 (26.5)	1872 (44.8)	2172 (74.1)	2366 (95.4)
Females: 14-18	1098 (47.2)	1255 (46.0)	1567 (50.9)	1968 (68.0)	2428 (96.9)	2918 (134.6)	3250 (162.9)
Females: 19-30	1352 (44.5)	1544 (46.8)	1920 (54.0)	2431 (71.3)	3057 (101.8)	3741 (141.7)	4193 (173.4)
Females: 31-50	1477 (46.1)	1704 (44.9)	2143 (41.2)	2719 (37.1)	3410 (47.4)	4152 (72.3)	4626 (92.9)
Females: 19-50	1414 (33.6)	1632 (33.5)	2055 (33.6)	2615 (35.7)	3286 (42.9)	4009 (58.6)	4498 (72.9)
Females: 51-70	1474 (42.7)	1683 (40.7)	2088 (37.1)	2616 (38.6)	3231 (59.4)	3890 (95.0)	4320 (123.0)
Females: 71 and over	1183 (37.5)	1342 (36.1)	1645 (35.1)	2038 (36.0)	2498 (41.7)	2975 (55.2)	3291 (69.1)
Females: 50 and over	1336 (37.8)	1534 (35.7)	1924 (30.8)	2435 (31.7)	3032 (46.8)	3663 (73.4)	4089 (94.5)
Females: 19 and over	1385 (27.3)	1595 (27.0)	1998 (26.2)	2536 (26.1)	3183 (29.3)	3866 (39.8)	4331 (48.6)
All individuals 1 and over	1148 (9.1)	1382 (11.2)	1872 (17.4)	2539 (24.3)	3325 (33.8)	4151 (48.7)	4703 (60.4)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Vitamin A (µg RAE/day)

Vitamin A (µg RAE/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	313 (21.5)	363 (20.7)	461 (19.1)	585 (20.0)	725 (25.5)	869 (35.5)	960 (43.8)
Males: 4-8	358 (17.7)	404 (15.9)	489 (13.1)	595 (13.0)	715 (18.8)	835 (28.0)	913 (35.7)
Males: 9-13	350 (34.1)	404 (31.9)	507 (28.0)	639 (26.9)	789 (35.0)	942 (50.8)	1042 (64.9)
Males: 14-18	335 (38.4)	390 (35.6)	499 (29.8)	639 (31.0)	807 (48.5)	985 (78.9)	1100 (100.8)
Males: 19-30	249 (26.7)	304 (25.9)	416 (23.2)	574 (22.1)	773 (30.9)	991 (50.8)	1139 (67.1)
Males: 31-50	271 (15.0)	334 (15.4)	460 (16.1)	634 (18.4)	851 (26.1)	1089 (38.0)	1245 (47.9)
Males: 19-50	261 (14.0)	321 (14.2)	443 (14.3)	612 (14.7)	821 (18.6)	1048 (27.7)	1206 (36.9)
Males: 51-70	252 (22.4)	316 (22.3)	449 (21.0)	635 (18.3)	867 (21.3)	1125 (35.0)	1294 (46.6)
Males: 71 and over	323 (28.0)	383 (28.1)	507 (27.5)	678 (28.3)	893 (33.7)	1132 (47.5)	1297 (60.7)
Males: 50 and over	268 (19.8)	331 (20.1)	464 (18.9)	647 (18.0)	874 (20.3)	1125 (29.5)	1299 (38.5)
Males: 19 and over	264 (12.5)	324 (12.8)	449 (12.6)	624 (12.3)	844 (14.2)	1085 (20.6)	1249 (25.7)
Females: 1-3	309 (14.2)	353 (13.2)	439 (13.1)	546 (18.2)	671 (27.5)	801 (39.7)	884 (47.2)
Females: 4-8	300 (23.6)	343 (21.7)	425 (18.2)	531 (15.3)	651 (17.4)	775 (26.2)	852 (33.7)
Females: 9-13	284 (19.7)	332 (19.3)	428 (19.6)	553 (22.3)	696 (28.5)	846 (38.5)	941 (45.5)
Females: 14-18	223 (22.5)	266 (21.6)	354 (20.2)	473 (21.5)	612 (29.5)	765 (44.4)	869 (55.8)
Females: 19-30	210 (17.4)	257 (17.1)	351 (16.0)	484 (16.2)	651 (24.6)	837 (42.5)	960 (57.2)
Females: 31-50	220 (17.1)	272 (17.1)	378 (16.9)	530 (20.8)	726 (35.5)	950 (59.2)	1100 (77.1)
Females: 19-50	216 (12.6)	266 (12.7)	369 (12.6)	513 (15.5)	698 (24.2)	906 (38.5)	1050 (50.2)
Females: 51-70	246 (15.2)	303 (16.0)	421 (17.4)	591 (19.1)	810 (23.7)	1063 (33.1)	1238 (40.7)
Females: 71 and over	284 (18.2)	334 (17.8)	435 (16.2)	574 (15.3)	746 (19.1)	934 (30.9)	1063 (41.6)
Females: 50 and over	255 (12.2)	309 (12.4)	424 (13.0)	585 (13.6)	791 (16.4)	1024 (21.9)	1187 (27.5)
Females: 19 and over	231 (10.4)	282 (10.6)	390 (10.9)	543 (11.9)	741 (15.5)	963 (22.8)	1118 (29.9)
All individuals 1 and over	254 (8.0)	310 (8.4)	423 (8.8)	579 (9.4)	774 (11.1)	986 (14.1)	1132 (17.0)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.
Vitamin A measured in Retinol Activity Equivalents (RAE).

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Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Alpha-carotene (µg/day)

Alpha-carotene (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	15 (4.8)	24 (6.6)	48 (10.5)	99 (15.0)	199 (28.8)	368 (69.3)	529 (118.2)
Males: 4-8	17 (7.8)	27 (9.4)	51 (11.6)	94 (12.0)	170 (20.6)	283 (57.6)	380 (101.4)
Males: 9-13	11 (4.4)	17 (6.1)	37 (10.3)	85 (19.3)	188 (38.2)	380 (82.5)	565 (135.9)
Males: 14-18	14 (6.5)	21 (7.7)	40 (9.2)	75 (10.5)	137 (17.3)	230 (42.8)	311 (73.0)
Males: 19-30	20 (5.7)	32 (7.1)	66 (8.6)	130 (9.4)	243 (24.0)	417 (68.5)	568 (118.3)
Males: 31-50	29 (6.0)	44 (7.2)	84 (9.7)	161 (14.1)	300 (29.7)	516 (68.1)	708 (111.8)
Males: 19-50	25 (4.1)	39 (4.8)	77 (6.0)	150 (8.1)	278 (18.5)	474 (46.1)	651 (76.8)
Males: 51-70	30 (6.4)	47 (8.7)	93 (12.8)	186 (16.5)	362 (24.7)	649 (64.2)	913 (117.4)
Males: 71 and over	31 (5.8)	50 (7.6)	103 (11.1)	220 (17.1)	459 (39.5)	878 (104.5)	1274 (180.9)
Males: 50 and over	30 (4.8)	47 (6.6)	95 (10.1)	195 (13.5)	383 (22.7)	699 (57.4)	997 (100.7)
Males: 19 and over	25 (3.0)	40 (3.8)	82 (5.4)	165 (8.0)	321 (16.3)	568 (38.8)	796 (64.4)
Females: 1-3	7 (2.3)	13 (3.1)	31 (5.1)	77 (8.6)	189 (23.9)	412 (74.9)	653 (142.1)
Females: 4-8	13 (4.6)	21 (5.9)	44 (8.5)	88 (13.1)	165 (24.6)	288 (51.5)	391 (82.8)
Females: 9-13	14 (7.4)	22 (9.4)	42 (12.4)	76 (13.8)	131 (19.4)	205 (47.7)	270 (82.0)
Females: 14-18	10 (5.5)	16 (7.4)	35 (10.9)	78 (14.6)	165 (27.2)	313 (77.7)	464 (142.7)
Females: 19-30	17 (4.8)	26 (5.9)	54 (7.8)	111 (9.3)	223 (18.6)	405 (55.8)	576 (99.7)
Females: 31-50	24 (4.4)	37 (5.8)	73 (9.3)	152 (16.7)	309 (36.0)	581 (79.9)	838 (129.6)
Females: 19-50	21 (3.0)	32 (3.8)	65 (5.6)	136 (9.7)	275 (22.3)	518 (54.6)	750 (91.7)
Females: 51-70	46 (10.2)	68 (12.6)	124 (17.4)	237 (23.4)	441 (36.5)	760 (75.5)	1042 (122.2)
Females: 71 and over	38 (6.5)	56 (8.2)	106 (12.1)	206 (18.8)	387 (36.7)	683 (80.1)	941 (127.3)
Females: 50 and over	44 (7.1)	64 (9.1)	119 (13.4)	229 (19.5)	428 (31.4)	737 (62.2)	1017 (99.3)
Females: 19 and over	26 (3.1)	41 (4.2)	82 (6.6)	169 (11.1)	339 (21.6)	626 (44.8)	899 (73.8)
All individuals 1 and over	20 (1.7)	32 (2.3)	66 (4.0)	140 (7.4)	287 (14.7)	531 (29.6)	761 (45.7)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Beta-carotene (µg/day)

Beta-carotene (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	238 (48.1)	305 (51.9)	466 (57.9)	739 (68.6)	1165 (114.9)	1767 (228.4)	2249 (342.4)
Males: 4-8	229 (31.6)	302 (34.9)	481 (39.0)	801 (48.5)	1329 (90.8)	2098 (190.4)	2748 (303.4)
Males: 9-13	263 (69.1)	337 (76.9)	511 (88.6)	805 (100.5)	1258 (130.1)	1869 (210.4)	2369 (310.2)
Males: 14-18	312 (60.5)	386 (63.2)	555 (66.7)	817 (79.9)	1203 (131.5)	1704 (239.3)	2081 (338.8)
Males: 19-30	384 (47.1)	499 (48.4)	763 (48.4)	1200 (58.4)	1857 (120.1)	2702 (240.6)	3352 (352.2)
Males: 31-50	383 (42.3)	526 (50.7)	872 (69.6)	1479 (111.0)	2450 (201.8)	3792 (359.7)	4841 (500.9)
Males: 19-50	375 (33.6)	508 (37.7)	824 (46.8)	1370 (71.9)	2217 (134.7)	3352 (245.5)	4279 (349.1)
Males: 51-70	470 (55.0)	634 (64.2)	1026 (78.9)	1700 (99.0)	2741 (135.4)	4160 (213.2)	5245 (291.2)
Males: 71 and over	500 (64.0)	669 (73.7)	1085 (90.7)	1795 (117.7)	2898 (190.5)	4390 (353.3)	5572 (513.4)
Males: 50 and over	474 (50.8)	637 (59.6)	1043 (74.6)	1728 (94.2)	2781 (125.0)	4197 (184.2)	5323 (251.7)
Males: 19 and over	405 (31.9)	547 (37.6)	893 (48.4)	1496 (68.4)	2444 (110.3)	3729 (188.0)	4749 (255.7)
Females: 1-3	167 (37.8)	228 (40.3)	390 (41.9)	680 (46.4)	1165 (91.9)	1886 (206.2)	2481 (311.9)
Females: 4-8	218 (34.5)	283 (38.5)	444 (44.6)	729 (55.8)	1189 (89.4)	1850 (167.6)	2381 (256.2)
Females: 9-13	331 (70.1)	400 (71.4)	559 (70.5)	807 (68.1)	1155 (92.2)	1601 (179.3)	1930 (264.4)
Females: 14-18	232 (49.1)	303 (54.0)	477 (59.7)	777 (72.2)	1244 (124.4)	1908 (260.1)	2468 (405.3)
Females: 19-30	192 (39.1)	282 (44.2)	520 (51.6)	985 (64.3)	1795 (126.4)	2999 (280.6)	3983 (437.3)
Females: 31-50	313 (33.8)	440 (41.4)	764 (59.1)	1363 (101.7)	2377 (205.9)	3868 (399.3)	5065 (578.0)
Females: 19-50	258 (29.7)	371 (35.1)	664 (45.8)	1216 (71.5)	2155 (141.0)	3548 (279.6)	4727 (418.1)
Females: 51-70	590 (74.3)	781 (85.1)	1236 (103.9)	2001 (118.4)	3153 (144.6)	4712 (226.6)	5916 (315.8)
Females: 71 and over	512 (53.6)	679 (60.0)	1073 (70.3)	1742 (91.2)	2762 (145.8)	4117 (263.4)	5186 (378.0)
Females: 50 and over	564 (46.6)	744 (54.2)	1181 (68.3)	1915 (86.3)	3027 (112.3)	4520 (158.8)	5682 (210.5)
Females: 19 and over	348 (28.2)	486 (34.1)	836 (46.2)	1482 (68.1)	2555 (108.8)	4077 (185.8)	5334 (258.8)
All individuals 1 and over	311 (15.8)	430 (20.6)	728 (31.3)	1273 (51.5)	2170 (86.2)	3426 (139.3)	4475 (183.0)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Beta-cryptoxanthin (µg/day)

Beta-cryptoxanthin (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	8 (1.8)	12 (2.3)	22 (3.2)	42 (4.7)	81 (8.9)	144 (19.7)	202 (31.7)
Males: 4-8	10 (3.1)	16 (3.7)	29 (4.7)	53 (6.0)	93 (9.6)	151 (19.9)	200 (31.6)
Males: 9-13	8 (2.5)	12 (2.9)	21 (3.7)	39 (5.0)	66 (8.6)	106 (16.5)	138 (24.6)
Males: 14-18	9 (3.0)	14 (3.5)	25 (4.0)	43 (4.3)	71 (8.5)	108 (19.8)	138 (31.0)
Males: 19-30	13 (4.4)	19 (5.0)	33 (5.6)	52 (4.3)	78 (5.9)	109 (16.1)	133 (25.7)
Males: 31-50	12 (3.7)	17 (2.6)	29 (2.7)	52 (4.3)	91 (7.9)	151 (15.3)	201 (22.4)
Males: 19-50	13 (1.9)	18 (2.2)	30 (2.7)	51 (3.3)	87 (5.1)	136 (10.1)	179 (15.6)
Males: 51-70	10 (4.1)	15 (4.1)	30 (3.7)	59 (4.0)	112 (6.4)	193 (13.9)	264 (22.3)
Males: 71 and over	13 (4.5)	19 (4.3)	34 (3.8)	63 (4.1)	111 (7.4)	179 (16.2)	236 (25.6)
Males: 50 and over	11 (2.7)	16 (2.8)	31 (2.7)	60 (3.3)	111 (5.1)	190 (10.2)	258 (16.8)
Males: 19 and over	11 (1.3)	16 (1.5)	30 (2.0)	54 (2.5)	97 (3.8)	159 (7.7)	212 (12.1)
Females: 1-3	7 (1.5)	11 (1.8)	22 (2.4)	43 (3.8)	82 (7.6)	143 (15.5)	194 (24.7)
Females: 4-8	12 (2.5)	16 (3.1)	28 (4.1)	48 (5.0)	81 (7.8)	129 (15.6)	167 (24.7)
Females: 9-13	17 (4.5)	21 (4.8)	30 (4.9)	45 (4.5)	66 (6.0)	93 (13.3)	113 (21.0)
Females: 14-18	5 (1.6)	8 (2.0)	16 (2.7)	32 (3.7)	57 (6.1)	95 (12.2)	128 (18.3)
Females: 19-30	9 (2.7)	13 (3.1)	23 (3.8)	39 (4.2)	63 (4.7)	94 (8.1)	119 (12.7)
Females: 31-50	10 (1.6)	14 (1.8)	26 (2.4)	48 (3.5)	87 (6.8)	148 (14.2)	199 (22.8)
Females: 19-50	9 (1.6)	14 (1.9)	25 (2.5)	45 (3.3)	78 (5.4)	127 (11.2)	169 (18.0)
Females: 51-70	13 (2.3)	19 (2.8)	35 (3.4)	61 (3.7)	99 (5.0)	152 (10.2)	192 (15.9)
Females: 71 and over	12 (6.4)	18 (5.4)	32 (4.6)	60 (5.0)	105 (7.0)	168 (13.2)	219 (19.6)
Females: 50 and over	13 (1.7)	19 (2.0)	34 (2.5)	60 (2.9)	102 (4.3)	157 (8.5)	203 (13.0)
Females: 19 and over	10 (1.4)	15 (1.7)	28 (2.2)	51 (2.8)	89 (4.1)	143 (8.2)	188 (13.0)
All individuals 1 and over	10 (0.8)	15 (1.0)	27 (1.4)	50 (2.0)	88 (3.1)	143 (5.2)	189 (7.5)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Lycopene (µg/day)

Lycopene (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	872 (391.6)	1192 (418.6)	1920 (427.1)	2867 (387.0)	3922 (434.9)	4953 (787.1)	5556 (1149.2)
Males: 4-8	986 (285.2)	1438 (327.5)	2456 (366.6)	3907 (327.0)	5678 (332.8)	7569 (699.1)	8806 (1076.9)
Males: 9-13	2110 (831.8)	2537 (740.4)	3411 (543.3)	4586 (349.9)	6009 (554.9)	7554 (1066.1)	8566 (1453.2)
Males: 14-18	2690 (990.5)	3323 (882.7)	4693 (603.3)	6515 (547.1)	8780 (1265.3)	11139 (2282.4)	12689 (3006.5)
Males: 19-30	2734 (868.2)	3360 (858.6)	4635 (780.4)	6472 (576.7)	8802 (545.8)	11470 (1199.6)	13312 (1822.0)
Males: 31-50	2437 (439.4)	3050 (435.2)	4355 (400.1)	6298 (334.3)	8850 (474.7)	11795 (933.0)	13871 (1334.2)
Males: 19-50	2570 (419.7)	3180 (418.8)	4471 (378.1)	6364 (298.1)	8866 (377.9)	11717 (763.8)	13737 (1127.3)
Males: 51-70	1632 (277.6)	2162 (279.6)	3300 (265.0)	5058 (281.5)	7460 (473.3)	10344 (847.4)	12418 (1147.4)
Males: 71 and over	917 (295.5)	1295 (334.0)	2205 (378.9)	3737 (378.3)	6028 (396.6)	8929 (679.7)	11072 (1025.3)
Males: 50 and over	1438 (202.0)	1916 (209.6)	3007 (220.1)	4746 (254.2)	7146 (393.1)	10038 (678.9)	12149 (939.2)
Males: 19 and over	1982 (214.7)	2564 (222.2)	3814 (223.6)	5721 (214.6)	8281 (300.5)	11263 (551.7)	13376 (765.7)
Females: 1-3	1259 (508.6)	1612 (548.1)	2298 (548.9)	3169 (391.3)	4195 (268.1)	5315 (764.0)	6031 (1209.5)
Females: 4-8	863 (658.4)	1255 (669.6)	2184 (569.2)	3487 (329.0)	5072 (419.6)	6742 (1002.0)	7770 (1431.5)
Females: 9-13	2362 (846.7)	2713 (768.8)	3401 (573.3)	4323 (364.8)	5427 (683.3)	6634 (1361.9)	7440 (1875.6)
Females: 14-18	1733 (563.2)	2151 (560.7)	3021 (512.6)	4277 (487.4)	5871 (679.7)	7616 (1176.8)	8889 (1623.4)
Females: 19-30	889 (264.5)	1367 (294.0)	2559 (304.8)	4444 (293.7)	6952 (632.1)	9802 (1353.5)	11767 (1956.9)
Females: 31-50	1262 (279.9)	1694 (306.0)	2641 (322.8)	4038 (292.8)	5869 (259.1)	7941 (455.1)	9380 (714.2)
Females: 19-50	1116 (225.0)	1581 (244.2)	2619 (243.7)	4199 (205.5)	6259 (257.1)	8585 (539.4)	10220 (808.2)
Females: 51-70	942 (262.3)	1352 (288.3)	2338 (307.6)	3808 (287.7)	5710 (320.9)	7792 (596.4)	9195 (885.2)
Females: 71 and over	983 (295.5)	1323 (312.5)	2087 (314.3)	3237 (284.1)	4825 (334.9)	6639 (609.2)	7911 (896.3)
Females: 50 and over	948 (237.6)	1345 (258.0)	2260 (262.0)	3658 (216.8)	5461 (232.8)	7452 (470.3)	8841 (712.0)
Females: 19 and over	1015 (158.3)	1454 (178.6)	2453 (191.4)	3969 (174.4)	5947 (183.4)	8140 (353.0)	9655 (531.0)
All individuals 1 and over	1418 (98.2)	1897 (107.7)	2956 (119.9)	4581 (131.2)	6776 (171.5)	9316 (274.5)	11130 (379.9)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Lutein + zeaxanthin (µg/day)

Lutein + zeaxanthin (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	165 (19.4)	210 (20.0)	313 (20.4)	474 (21.8)	701 (38.3)	987 (78.0)	1197 (113.2)
Males: 4-8	216 (27.7)	271 (27.0)	393 (22.3)	586 (26.0)	865 (67.5)	1221 (142.2)	1493 (212.4)
Males: 9-13	299 (36.0)	353 (36.1)	466 (38.4)	631 (49.4)	847 (79.7)	1099 (128.4)	1284 (170.9)
Males: 14-18	294 (27.7)	359 (29.4)	503 (34.7)	717 (55.8)	1020 (102.6)	1396 (177.0)	1671 (239.4)
Males: 19-30	331 (51.4)	414 (52.6)	595 (52.0)	876 (50.9)	1269 (73.9)	1743 (135.7)	2091 (193.9)
Males: 31-50	376 (45.5)	483 (49.0)	725 (53.4)	1116 (67.0)	1695 (117.6)	2445 (223.1)	3006 (319.7)
Males: 19-50	352 (35.1)	450 (37.8)	670 (41.6)	1023 (50.7)	1530 (81.6)	2168 (144.3)	2670 (206.4)
Males: 51-70	447 (56.0)	563 (61.6)	820 (70.5)	1222 (80.4)	1791 (98.3)	2511 (138.1)	3034 (179.4)
Males: 71 and over	414 (57.2)	509 (60.8)	727 (62.7)	1067 (62.6)	1558 (82.1)	2187 (152.5)	2668 (226.4)
Males: 50 and over	440 (47.1)	550 (52.1)	803 (58.7)	1191 (67.2)	1738 (82.4)	2421 (113.7)	2936 (148.4)
Males: 19 and over	382 (30.8)	484 (33.8)	715 (38.9)	1085 (48.6)	1619 (70.2)	2294 (112.7)	2803 (150.4)
Females: 1-3	171 (29.4)	216 (28.3)	320 (23.6)	476 (22.0)	694 (45.6)	965 (93.4)	1161 (132.2)
Females: 4-8	255 (29.5)	302 (29.2)	401 (27.8)	546 (30.7)	734 (45.3)	952 (75.4)	1102 (100.1)
Females: 9-13	290 (48.9)	345 (49.8)	467 (48.7)	649 (45.0)	893 (56.4)	1190 (103.7)	1401 (149.3)
Females: 14-18	325 (75.2)	378 (71.3)	489 (60.1)	643 (51.6)	834 (73.3)	1055 (133.0)	1213 (186.0)
Females: 19-30	219 (54.7)	296 (57.5)	480 (56.5)	796 (47.1)	1287 (80.0)	1945 (195.7)	2446 (309.1)
Females: 31-50	303 (36.1)	400 (42.0)	631 (53.0)	1020 (70.8)	1624 (114.1)	2448 (200.9)	3075 (282.9)
Females: 19-50	264 (31.4)	354 (34.8)	568 (39.5)	934 (47.9)	1499 (77.7)	2267 (147.2)	2884 (219.2)
Females: 51-70	446 (56.8)	561 (61.7)	828 (70.0)	1267 (76.6)	1923 (98.6)	2817 (173.6)	3518 (254.5)
Females: 71 and over	324 (39.9)	414 (41.2)	624 (39.3)	981 (36.2)	1537 (73.1)	2300 (176.3)	2922 (279.1)
Females: 50 and over	402 (30.3)	509 (33.8)	758 (40.6)	1172 (50.7)	1802 (76.0)	2661 (130.3)	3348 (184.5)
Females: 19 and over	312 (25.8)	409 (29.0)	641 (34.8)	1037 (43.3)	1654 (58.7)	2482 (90.3)	3145 (124.1)
All individuals 1 and over	296 (15.1)	384 (18.2)	587 (24.2)	925 (34.8)	1430 (52.1)	2083 (78.2)	2597 (99.1)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Thiamin (mg/day)

Thiamin (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	0.71 (0.049)	0.79 (0.044)	0.95 (0.034)	1.15 (0.029)	1.37 (0.043)	1.60 (0.071)	1.74 (0.094)
Males: 4-8	0.96 (0.034)	1.05 (0.031)	1.22 (0.026)	1.42 (0.024)	1.65 (0.032)	1.88 (0.048)	2.03 (0.062)
Males: 9-13	1.15 (0.066)	1.26 (0.058)	1.45 (0.047)	1.68 (0.048)	1.93 (0.070)	2.18 (0.106)	2.35 (0.132)
Males: 14-18	1.14 (0.075)	1.28 (0.074)	1.56 (0.070)	1.91 (0.072)	2.31 (0.086)	2.73 (0.116)	2.99 (0.137)
Males: 19-30	1.09 (0.075)	1.25 (0.072)	1.56 (0.069)	1.97 (0.070)	2.46 (0.093)	2.96 (0.135)	3.30 (0.172)
Males: 31-50	1.13 (0.035)	1.28 (0.032)	1.57 (0.027)	1.93 (0.028)	2.35 (0.042)	2.79 (0.062)	3.07 (0.077)
Males: 19-50	1.11 (0.036)	1.27 (0.034)	1.57 (0.032)	1.95 (0.035)	2.39 (0.046)	2.84 (0.067)	3.15 (0.085)
Males: 51-70	1.10 (0.036)	1.23 (0.035)	1.48 (0.034)	1.79 (0.032)	2.15 (0.035)	2.52 (0.049)	2.75 (0.063)
Males: 71 and over	0.95 (0.030)	1.07 (0.028)	1.30 (0.026)	1.59 (0.031)	1.94 (0.044)	2.30 (0.064)	2.54 (0.080)
Males: 50 and over	1.05 (0.028)	1.18 (0.028)	1.43 (0.026)	1.74 (0.026)	2.10 (0.032)	2.47 (0.045)	2.70 (0.056)
Males: 19 and over	1.09 (0.024)	1.23 (0.023)	1.51 (0.022)	1.87 (0.023)	2.28 (0.028)	2.71 (0.041)	2.99 (0.052)
Females: 1-3	0.69 (0.032)	0.76 (0.032)	0.90 (0.031)	1.08 (0.032)	1.28 (0.038)	1.49 (0.051)	1.63 (0.060)
Females: 4-8	0.89 (0.038)	0.98 (0.033)	1.13 (0.028)	1.33 (0.028)	1.54 (0.042)	1.76 (0.066)	1.89 (0.083)
Females: 9-13	1.03 (0.057)	1.11 (0.050)	1.28 (0.040)	1.47 (0.040)	1.69 (0.058)	1.91 (0.088)	2.04 (0.108)
Females: 14-18	0.79 (0.067)	0.89 (0.063)	1.08 (0.054)	1.33 (0.051)	1.61 (0.064)	1.91 (0.093)	2.11 (0.117)
Females: 19-30	0.85 (0.052)	0.95 (0.046)	1.13 (0.036)	1.36 (0.025)	1.62 (0.024)	1.88 (0.038)	2.04 (0.049)
Females: 31-50	0.84 (0.046)	0.94 (0.042)	1.13 (0.034)	1.36 (0.026)	1.63 (0.027)	1.90 (0.041)	2.07 (0.052)
Females: 19-50	0.85 (0.034)	0.95 (0.031)	1.13 (0.026)	1.36 (0.021)	1.63 (0.021)	1.89 (0.029)	2.06 (0.036)
Females: 51-70	0.85 (0.033)	0.94 (0.032)	1.12 (0.030)	1.34 (0.032)	1.60 (0.041)	1.87 (0.058)	2.05 (0.070)
Females: 71 and over	0.76 (0.029)	0.86 (0.028)	1.04 (0.027)	1.28 (0.027)	1.55 (0.033)	1.84 (0.048)	2.03 (0.062)
Females: 50 and over	0.82 (0.026)	0.91 (0.025)	1.09 (0.022)	1.32 (0.022)	1.59 (0.029)	1.87 (0.041)	2.05 (0.052)
Females: 19 and over	0.83 (0.027)	0.93 (0.025)	1.11 (0.021)	1.35 (0.018)	1.61 (0.021)	1.88 (0.030)	2.06 (0.038)
All individuals 1 and over	0.88 (0.015)	1.00 (0.014)	1.23 (0.013)	1.54 (0.012)	1.91 (0.016)	2.30 (0.023)	2.55 (0.029)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Riboflavin (mg/day)

Riboflavin (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	1.05 (0.073)	1.21 (0.068)	1.50 (0.057)	1.85 (0.050)	2.23 (0.050)	2.61 (0.063)	2.85 (0.075)
Males: 4-8	1.24 (0.043)	1.37 (0.037)	1.62 (0.028)	1.92 (0.032)	2.26 (0.052)	2.60 (0.081)	2.81 (0.103)
Males: 9-13	1.34 (0.079)	1.50 (0.074)	1.80 (0.070)	2.18 (0.075)	2.61 (0.099)	3.06 (0.143)	3.35 (0.184)
Males: 14-18	1.47 (0.108)	1.65 (0.101)	2.02 (0.091)	2.47 (0.092)	3.00 (0.123)	3.54 (0.182)	3.89 (0.224)
Males: 19-30	1.20 (0.073)	1.40 (0.069)	1.81 (0.064)	2.35 (0.070)	3.00 (0.099)	3.67 (0.147)	4.12 (0.184)
Males: 31-50	1.38 (0.042)	1.59 (0.037)	2.01 (0.032)	2.54 (0.036)	3.18 (0.062)	3.85 (0.098)	4.28 (0.126)
Males: 19-50	1.30 (0.042)	1.51 (0.039)	1.93 (0.037)	2.47 (0.041)	3.11 (0.057)	3.78 (0.085)	4.23 (0.107)
Males: 51-70	1.26 (0.038)	1.47 (0.038)	1.87 (0.043)	2.40 (0.048)	3.01 (0.058)	3.65 (0.080)	4.05 (0.098)
Males: 71 and over	1.26 (0.042)	1.43 (0.040)	1.75 (0.039)	2.16 (0.045)	2.63 (0.061)	3.11 (0.085)	3.42 (0.103)
Males: 50 and over	1.24 (0.030)	1.45 (0.031)	1.84 (0.033)	2.34 (0.040)	2.92 (0.051)	3.52 (0.068)	3.91 (0.083)
Males: 19 and over	1.28 (0.030)	1.49 (0.029)	1.89 (0.028)	2.42 (0.030)	3.04 (0.037)	3.69 (0.051)	4.12 (0.064)
Females: 1-3	1.09 (0.048)	1.22 (0.046)	1.47 (0.044)	1.79 (0.048)	2.15 (0.064)	2.52 (0.093)	2.76 (0.113)
Females: 4-8	1.08 (0.050)	1.21 (0.045)	1.46 (0.039)	1.77 (0.040)	2.12 (0.053)	2.46 (0.081)	2.68 (0.101)
Females: 9-13	1.14 (0.081)	1.27 (0.071)	1.52 (0.055)	1.83 (0.042)	2.17 (0.060)	2.52 (0.100)	2.74 (0.130)
Females: 14-18	0.94 (0.076)	1.07 (0.072)	1.32 (0.065)	1.65 (0.062)	2.01 (0.075)	2.40 (0.104)	2.66 (0.129)
Females: 19-30	0.96 (0.050)	1.10 (0.050)	1.37 (0.049)	1.72 (0.053)	2.13 (0.069)	2.55 (0.097)	2.81 (0.118)
Females: 31-50	1.02 (0.045)	1.18 (0.042)	1.47 (0.036)	1.83 (0.032)	2.26 (0.041)	2.70 (0.062)	2.98 (0.078)
Females: 19-50	1.00 (0.034)	1.15 (0.032)	1.43 (0.030)	1.79 (0.032)	2.21 (0.044)	2.64 (0.064)	2.93 (0.078)
Females: 51-70	1.04 (0.024)	1.18 (0.023)	1.47 (0.025)	1.84 (0.033)	2.27 (0.047)	2.74 (0.066)	3.04 (0.078)
Females: 71 and over	0.94 (0.025)	1.08 (0.025)	1.35 (0.026)	1.70 (0.031)	2.11 (0.039)	2.53 (0.051)	2.80 (0.062)
Females: 50 and over	1.00 (0.020)	1.15 (0.018)	1.43 (0.018)	1.80 (0.022)	2.23 (0.032)	2.68 (0.046)	2.98 (0.057)
Females: 19 and over	1.00 (0.025)	1.15 (0.023)	1.43 (0.021)	1.80 (0.022)	2.22 (0.031)	2.66 (0.046)	2.96 (0.058)
All individuals 1 and over	1.08 (0.017)	1.26 (0.017)	1.59 (0.017)	2.04 (0.019)	2.57 (0.025)	3.13 (0.034)	3.49 (0.041)

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Niacin (mg/day)

Niacin (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	8.2 (0.45)	9.2 (0.42)	11.3 (0.35)	13.8 (0.34)	16.7 (0.44)	19.7 (0.69)	21.6 (0.91)
Males: 4-8	12.4 (0.50)	13.5 (0.44)	15.6 (0.34)	18.2 (0.31)	21.1 (0.47)	24.0 (0.75)	25.9 (0.98)
Males: 9-13	17.1 (1.27)	18.4 (1.10)	20.8 (0.85)	23.8 (0.75)	27.1 (1.10)	30.3 (1.71)	32.4 (2.17)
Males: 14-18	17.9 (1.34)	20.0 (1.23)	24.0 (1.00)	28.9 (0.87)	34.7 (1.17)	40.7 (1.87)	44.5 (2.38)
Males: 19-30	20.0 (1.35)	22.5 (1.25)	27.1 (1.06)	32.9 (0.93)	39.5 (1.15)	46.2 (1.66)	50.5 (2.05)
Males: 31-50	19.7 (0.61)	22.1 (0.55)	26.4 (0.47)	31.8 (0.44)	37.9 (0.63)	44.1 (0.93)	48.0 (1.16)
Males: 19-50	19.8 (0.71)	22.2 (0.65)	26.6 (0.52)	32.2 (0.43)	38.5 (0.55)	44.7 (0.85)	48.9 (1.09)
Males: 51-70	16.9 (0.52)	18.9 (0.51)	22.8 (0.48)	27.7 (0.47)	33.2 (0.59)	38.9 (0.89)	42.4 (1.15)
Males: 71 and over	13.7 (0.55)	15.3 (0.53)	18.4 (0.49)	22.4 (0.49)	27.1 (0.62)	32.0 (0.92)	35.2 (1.18)
Males: 50 and over	15.6 (0.48)	17.7 (0.46)	21.6 (0.43)	26.4 (0.41)	31.9 (0.50)	37.5 (0.75)	41.1 (0.97)
Males: 19 and over	17.8 (0.41)	20.2 (0.39)	24.5 (0.34)	30.0 (0.31)	36.2 (0.38)	42.4 (0.57)	46.4 (0.71)
Females: 1-3	7.3 (0.43)	8.3 (0.42)	10.1 (0.38)	12.4 (0.37)	15.1 (0.43)	18.1 (0.60)	19.9 (0.74)
Females: 4-8	10.6 (0.45)	11.8 (0.39)	14.1 (0.32)	17.1 (0.36)	20.4 (0.56)	23.7 (0.86)	25.8 (1.08)
Females: 9-13	13.8 (0.77)	15.0 (0.68)	17.2 (0.51)	19.9 (0.43)	22.9 (0.60)	25.8 (0.95)	27.6 (1.19)
Females: 14-18	12.5 (0.89)	13.9 (0.84)	16.6 (0.74)	19.9 (0.69)	23.4 (0.80)	27.1 (1.07)	29.5 (1.31)
Females: 19-30	13.8 (0.61)	15.2 (0.53)	17.9 (0.42)	21.2 (0.42)	24.9 (0.63)	28.5 (0.95)	30.8 (1.16)
Females: 31-50	12.6 (0.61)	14.2 (0.55)	17.0 (0.42)	20.5 (0.28)	24.5 (0.31)	28.5 (0.54)	31.0 (0.73)
Females: 19-50	13.0 (0.48)	14.5 (0.44)	17.3 (0.36)	20.8 (0.29)	24.6 (0.34)	28.5 (0.50)	31.0 (0.64)
Females: 51-70	12.1 (0.55)	13.6 (0.53)	16.3 (0.45)	19.9 (0.36)	23.9 (0.40)	28.2 (0.68)	30.9 (0.93)
Females: 71 and over	10.0 (0.37)	11.5 (0.35)	14.1 (0.34)	17.6 (0.37)	21.6 (0.44)	25.6 (0.55)	28.3 (0.66)
Females: 50 and over	11.3 (0.43)	12.8 (0.40)	15.6 (0.34)	19.2 (0.28)	23.3 (0.32)	27.6 (0.52)	30.4 (0.70)
Females: 19 and over	12.2 (0.38)	13.7 (0.35)	16.5 (0.28)	20.1 (0.22)	24.1 (0.24)	28.2 (0.37)	30.9 (0.48)
All individuals 1 and over	12.5 (0.24)	14.4 (0.23)	18.1 (0.21)	23.1 (0.20)	29.2 (0.24)	35.5 (0.37)	39.5 (0.47)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Vitamin B6 (mg/day)

Vitamin B6 (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	0.81 (0.051)	0.91 (0.045)	1.09 (0.033)	1.32 (0.029)	1.57 (0.043)	1.82 (0.072)	1.98 (0.094)
Males: 4-8	0.99 (0.035)	1.09 (0.030)	1.28 (0.025)	1.52 (0.024)	1.80 (0.036)	2.08 (0.057)	2.27 (0.076)
Males: 9-13	1.18 (0.092)	1.31 (0.084)	1.54 (0.073)	1.84 (0.071)	2.19 (0.098)	2.56 (0.148)	2.80 (0.191)
Males: 14-18	1.27 (0.116)	1.44 (0.106)	1.77 (0.086)	2.20 (0.079)	2.72 (0.125)	3.27 (0.215)	3.62 (0.282)
Males: 19-30	1.34 (0.121)	1.54 (0.115)	1.94 (0.102)	2.47 (0.088)	3.11 (0.104)	3.78 (0.153)	4.23 (0.196)
Males: 31-50	1.35 (0.050)	1.56 (0.045)	1.95 (0.037)	2.46 (0.037)	3.06 (0.061)	3.70 (0.097)	4.12 (0.126)
Males: 19-50	1.34 (0.060)	1.55 (0.056)	1.94 (0.050)	2.46 (0.042)	3.08 (0.045)	3.72 (0.066)	4.16 (0.086)
Males: 51-70	1.19 (0.040)	1.37 (0.041)	1.71 (0.042)	2.16 (0.041)	2.68 (0.051)	3.23 (0.074)	3.57 (0.097)
Males: 71 and over	1.05 (0.039)	1.21 (0.037)	1.51 (0.033)	1.92 (0.036)	2.41 (0.057)	2.95 (0.098)	3.31 (0.134)
Males: 50 and over	1.15 (0.034)	1.32 (0.035)	1.66 (0.035)	2.10 (0.036)	2.62 (0.045)	3.16 (0.065)	3.52 (0.083)
Males: 19 and over	1.27 (0.040)	1.46 (0.039)	1.83 (0.035)	2.32 (0.031)	2.91 (0.032)	3.52 (0.047)	3.93 (0.060)
Females: 1-3	0.69 (0.037)	0.77 (0.035)	0.95 (0.033)	1.17 (0.036)	1.43 (0.050)	1.71 (0.074)	1.90 (0.091)
Females: 4-8	0.85 (0.035)	0.96 (0.032)	1.16 (0.029)	1.43 (0.027)	1.73 (0.035)	2.04 (0.056)	2.24 (0.076)
Females: 9-13	0.99 (0.074)	1.09 (0.069)	1.30 (0.057)	1.55 (0.049)	1.84 (0.053)	2.14 (0.077)	2.32 (0.098)
Females: 14-18	0.89 (0.087)	1.00 (0.079)	1.23 (0.068)	1.52 (0.059)	1.85 (0.069)	2.19 (0.098)	2.42 (0.123)
Females: 19-30	0.99 (0.067)	1.11 (0.062)	1.34 (0.053)	1.63 (0.053)	1.98 (0.077)	2.35 (0.120)	2.58 (0.151)
Females: 31-50	0.93 (0.058)	1.07 (0.054)	1.32 (0.045)	1.64 (0.037)	2.01 (0.043)	2.40 (0.066)	2.65 (0.085)
Females: 19-50	0.94 (0.046)	1.07 (0.043)	1.32 (0.039)	1.63 (0.035)	2.00 (0.038)	2.39 (0.051)	2.64 (0.064)
Females: 51-70	0.91 (0.038)	1.04 (0.038)	1.30 (0.037)	1.65 (0.038)	2.06 (0.051)	2.51 (0.079)	2.81 (0.103)
Females: 71 and over	0.82 (0.031)	0.95 (0.030)	1.19 (0.030)	1.51 (0.035)	1.90 (0.051)	2.31 (0.075)	2.59 (0.097)
Females: 50 and over	0.87 (0.031)	1.00 (0.031)	1.26 (0.030)	1.60 (0.029)	2.01 (0.036)	2.45 (0.055)	2.75 (0.072)
Females: 19 and over	0.91 (0.035)	1.04 (0.034)	1.29 (0.030)	1.62 (0.027)	2.01 (0.029)	2.42 (0.039)	2.70 (0.049)
All individuals 1 and over	0.96 (0.022)	1.11 (0.022)	1.42 (0.022)	1.84 (0.022)	2.36 (0.024)	2.90 (0.029)	3.27 (0.034)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Folate (µg DFE/day)

Folate (µg DFE/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	198 (13.0)	227 (12.6)	285 (11.9)	360 (12.9)	448 (17.1)	540 (25.1)	600 (31.8)
Males: 4-8	304 (21.7)	337 (19.4)	400 (14.8)	482 (11.3)	579 (18.2)	682 (32.8)	751 (45.2)
Males: 9-13	326 (25.7)	369 (22.7)	451 (18.2)	558 (19.4)	682 (32.7)	810 (53.1)	896 (69.1)
Males: 14-18	324 (23.7)	372 (23.7)	470 (23.0)	602 (25.3)	767 (35.0)	952 (54.9)	1076 (70.2)
Males: 19-30	366 (29.7)	418 (28.1)	517 (24.9)	647 (22.4)	800 (26.7)	959 (39.6)	1064 (50.5)
Males: 31-50	330 (14.5)	382 (13.6)	483 (12.8)	617 (15.3)	780 (23.8)	955 (35.6)	1069 (44.5)
Males: 19-50	342 (12.0)	395 (11.5)	496 (11.3)	630 (13.3)	787 (19.3)	952 (28.1)	1065 (35.4)
Males: 51-70	312 (12.5)	357 (12.8)	444 (12.8)	560 (11.7)	698 (11.9)	848 (17.4)	945 (23.3)
Males: 71 and over	267 (11.9)	310 (12.0)	399 (12.6)	521 (13.8)	672 (16.8)	841 (23.5)	957 (29.9)
Males: 50 and over	299 (10.2)	344 (10.7)	434 (10.4)	552 (10.1)	693 (11.0)	846 (16.3)	949 (22.2)
Males: 19 and over	325 (8.7)	375 (8.6)	470 (8.7)	599 (9.9)	753 (13.2)	915 (18.7)	1025 (22.8)
Females: 1-3	187 (9.3)	213 (9.2)	265 (9.0)	334 (10.1)	419 (13.2)	514 (19.0)	578 (23.5)
Females: 4-8	268 (20.2)	299 (18.3)	359 (14.3)	437 (10.8)	528 (16.1)	625 (29.5)	687 (39.8)
Females: 9-13	290 (29.7)	326 (27.7)	399 (23.2)	497 (19.6)	614 (24.3)	743 (40.4)	828 (53.9)
Females: 14-18	235 (22.9)	275 (22.6)	356 (22.1)	465 (22.8)	595 (28.1)	738 (39.9)	837 (50.1)
Females: 19-30	275 (21.8)	309 (19.2)	372 (14.3)	454 (8.7)	548 (13.4)	646 (26.1)	708 (35.2)
Females: 31-50	246 (14.1)	284 (13.5)	358 (12.3)	455 (12.6)	574 (18.5)	702 (29.3)	785 (37.5)
Females: 19-50	256 (11.6)	292 (10.8)	363 (9.7)	455 (10.1)	565 (15.0)	681 (23.9)	758 (30.7)
Females: 51-70	245 (9.1)	281 (8.7)	352 (8.2)	446 (10.7)	558 (17.2)	682 (26.4)	765 (33.3)
Females: 71 and over	217 (8.3)	252 (8.1)	322 (8.3)	419 (9.8)	541 (13.7)	678 (21.1)	773 (27.9)
Females: 50 and over	235 (7.0)	271 (6.9)	342 (6.9)	438 (8.4)	554 (12.2)	681 (17.8)	768 (22.2)
Females: 19 and over	247 (8.4)	283 (8.0)	354 (7.4)	447 (7.6)	561 (10.4)	683 (16.0)	765 (20.9)
All individuals 1 and over	264 (4.8)	307 (4.7)	392 (4.8)	506 (5.5)	647 (8.2)	797 (12.4)	899 (15.7)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.
Folate measured in Dietary Folate Equivalents (DFE).

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Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Food folate (µg/day)

Food folate (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	62 (4.0)	72 (3.6)	91 (2.8)	117 (2.6)	146 (3.5)	176 (5.7)	196 (7.4)
Males: 4-8	87 (4.9)	98 (4.3)	116 (3.0)	140 (2.5)	167 (4.0)	194 (6.5)	211 (8.3)
Males: 9-13	104 (5.3)	115 (4.8)	137 (4.0)	164 (4.9)	196 (8.0)	228 (12.2)	249 (15.6)
Males: 14-18	119 (11.8)	132 (10.9)	156 (9.0)	187 (7.1)	224 (7.8)	262 (12.6)	286 (16.7)
Males: 19-30	131 (7.6)	150 (6.9)	187 (5.9)	234 (6.1)	290 (9.4)	347 (14.5)	383 (18.4)
Males: 31-50	135 (6.9)	157 (6.4)	198 (5.8)	252 (6.6)	317 (10.7)	386 (16.9)	430 (21.6)
Males: 19-50	132 (5.4)	153 (5.1)	193 (4.7)	246 (5.5)	307 (8.3)	371 (12.5)	414 (16.0)
Males: 51-70	136 (6.4)	156 (6.1)	194 (5.3)	243 (4.4)	301 (5.3)	362 (8.7)	401 (11.4)
Males: 71 and over	108 (3.1)	123 (3.1)	153 (3.3)	193 (4.4)	243 (6.7)	297 (10.3)	334 (12.7)
Males: 50 and over	127 (4.4)	146 (4.3)	183 (3.9)	232 (3.7)	288 (4.5)	347 (6.9)	387 (9.0)
Males: 19 and over	130 (3.8)	150 (3.7)	189 (3.7)	240 (4.1)	300 (5.7)	363 (8.2)	404 (10.0)
Females: 1-3	60 (6.0)	69 (5.1)	89 (3.5)	112 (3.1)	140 (5.1)	168 (8.3)	187 (10.2)
Females: 4-8	79 (5.0)	88 (4.3)	106 (3.1)	129 (2.7)	155 (4.6)	182 (8.2)	199 (10.7)
Females: 9-13	90 (5.3)	100 (4.8)	119 (3.9)	143 (3.7)	171 (5.1)	200 (8.0)	218 (10.2)
Females: 14-18	88 (9.6)	99 (9.0)	119 (7.8)	145 (6.1)	174 (5.4)	204 (7.0)	223 (9.0)
Females: 19-30	91 (9.8)	105 (8.6)	131 (6.4)	165 (3.9)	204 (5.4)	244 (10.1)	270 (13.6)
Females: 31-50	96 (5.8)	112 (5.8)	144 (5.6)	185 (5.5)	236 (7.1)	291 (10.8)	326 (14.1)
Females: 19-50	92 (5.5)	108 (5.1)	138 (4.4)	178 (4.0)	225 (5.6)	275 (8.9)	308 (11.7)
Females: 51-70	110 (4.8)	126 (4.7)	158 (4.6)	199 (4.7)	248 (5.9)	301 (8.5)	336 (10.6)
Females: 71 and over	93 (4.5)	106 (4.0)	131 (3.2)	164 (3.2)	203 (5.0)	245 (8.0)	272 (10.3)
Females: 50 and over	103 (3.3)	119 (3.2)	149 (3.3)	188 (3.8)	235 (5.1)	286 (7.2)	320 (8.9)
Females: 19 and over	97 (3.6)	112 (3.4)	142 (3.1)	182 (3.1)	230 (4.0)	280 (5.9)	314 (7.6)
All individuals 1 and over	94 (2.2)	111 (2.2)	145 (2.3)	191 (2.8)	247 (3.7)	305 (5.2)	343 (6.4)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Choline (mg/day)

Choline (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	115 (8.8)	132 (7.8)	166 (5.9)	208 (5.6)	257 (7.8)	307 (12.3)	339 (15.4)
Males: 4-8	156 (7.0)	170 (6.3)	196 (5.1)	228 (4.4)	266 (6.1)	305 (10.2)	331 (13.6)
Males: 9-13	190 (10.5)	206 (8.9)	235 (6.8)	270 (6.6)	309 (10.4)	347 (15.9)	371 (20.2)
Males: 14-18	195 (16.5)	220 (15.4)	266 (12.9)	324 (10.5)	392 (11.6)	462 (18.1)	506 (23.5)
Males: 19-30	222 (12.1)	252 (10.7)	308 (8.8)	381 (9.0)	464 (14.1)	548 (21.5)	603 (26.8)
Males: 31-50	250 (9.4)	282 (8.4)	342 (6.9)	418 (6.4)	505 (9.1)	595 (13.9)	652 (17.9)
Males: 19-50	237 (7.9)	269 (7.2)	329 (6.2)	404 (6.1)	490 (8.3)	577 (12.0)	635 (15.0)
Males: 51-70	225 (6.4)	255 (6.0)	312 (5.9)	384 (6.0)	466 (7.1)	551 (10.0)	604 (12.5)
Males: 71 and over	202 (6.5)	224 (6.5)	267 (6.5)	320 (8.0)	380 (11.2)	442 (15.8)	482 (19.2)
Males: 50 and over	215 (5.1)	244 (5.0)	299 (4.9)	368 (5.1)	447 (6.0)	527 (8.0)	579 (10.0)
Males: 19 and over	229 (4.6)	259 (4.3)	316 (4.0)	390 (4.2)	474 (5.5)	560 (7.5)	616 (9.0)
Females: 1-3	126 (5.2)	139 (4.9)	167 (4.6)	202 (4.8)	243 (6.3)	289 (9.4)	319 (11.6)
Females: 4-8	148 (6.9)	161 (6.2)	186 (5.1)	217 (4.7)	250 (6.1)	284 (8.9)	305 (11.0)
Females: 9-13	156 (11.1)	170 (10.0)	196 (7.9)	228 (6.5)	262 (8.8)	297 (13.9)	319 (17.6)
Females: 14-18	138 (11.2)	154 (10.6)	183 (8.8)	221 (6.9)	262 (7.1)	305 (10.9)	333 (14.7)
Females: 19-30	159 (7.6)	176 (7.0)	207 (6.1)	245 (6.1)	289 (8.0)	333 (11.3)	360 (13.6)
Females: 31-50	166 (8.6)	186 (7.9)	223 (6.4)	269 (5.3)	321 (6.6)	374 (10.0)	406 (12.7)
Females: 19-50	162 (6.2)	181 (5.6)	216 (4.7)	260 (4.3)	310 (5.8)	360 (8.9)	392 (11.0)
Females: 51-70	161 (6.7)	181 (6.3)	218 (5.8)	265 (6.3)	320 (8.7)	378 (12.6)	415 (15.4)
Females: 71 and over	143 (3.6)	160 (3.3)	193 (3.0)	235 (4.0)	282 (6.2)	329 (8.9)	360 (10.9)
Females: 50 and over	154 (4.8)	173 (4.4)	209 (4.0)	256 (4.3)	309 (6.1)	365 (9.2)	401 (11.4)
Females: 19 and over	158 (5.0)	177 (4.5)	213 (3.6)	259 (3.5)	310 (5.2)	362 (7.9)	397 (10.0)
All individuals 1 and over	160 (3.2)	184 (3.0)	230 (2.7)	294 (3.0)	373 (4.2)	455 (6.2)	508 (7.7)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Vitamin B12 (µg/day)

Vitamin B12 (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	2.08 (0.180)	2.47 (0.176)	3.24 (0.160)	4.22 (0.147)	5.33 (0.151)	6.47 (0.191)	7.19 (0.236)
Males: 4-8	2.61 (0.139)	2.98 (0.125)	3.68 (0.109)	4.57 (0.109)	5.60 (0.148)	6.65 (0.224)	7.34 (0.286)
Males: 9-13	3.31 (0.331)	3.71 (0.300)	4.45 (0.245)	5.39 (0.201)	6.44 (0.240)	7.50 (0.365)	8.19 (0.477)
Males: 14-18	3.30 (0.322)	3.85 (0.296)	4.96 (0.230)	6.40 (0.172)	8.14 (0.264)	10.01 (0.503)	11.22 (0.680)
Males: 19-30	2.94 (0.339)	3.48 (0.324)	4.55 (0.280)	6.04 (0.219)	7.88 (0.262)	9.89 (0.465)	11.25 (0.635)
Males: 31-50	3.19 (0.160)	3.76 (0.150)	4.86 (0.136)	6.36 (0.168)	8.20 (0.295)	10.20 (0.482)	11.51 (0.624)
Males: 19-50	3.09 (0.160)	3.65 (0.156)	4.75 (0.147)	6.25 (0.147)	8.07 (0.195)	10.03 (0.300)	11.39 (0.394)
Males: 51-70	2.61 (0.124)	3.13 (0.125)	4.18 (0.133)	5.65 (0.156)	7.48 (0.235)	9.52 (0.368)	10.88 (0.471)
Males: 71 and over	2.59 (0.206)	3.03 (0.207)	3.97 (0.198)	5.28 (0.209)	6.97 (0.323)	8.91 (0.564)	10.28 (0.787)
Males: 50 and over	2.61 (0.111)	3.11 (0.113)	4.15 (0.114)	5.59 (0.141)	7.38 (0.219)	9.38 (0.353)	10.75 (0.463)
Males: 19 and over	2.90 (0.112)	3.44 (0.111)	4.50 (0.108)	5.98 (0.119)	7.83 (0.165)	9.83 (0.254)	11.22 (0.331)
Females: 1-3	2.24 (0.105)	2.59 (0.106)	3.30 (0.111)	4.22 (0.141)	5.32 (0.197)	6.51 (0.283)	7.29 (0.345)
Females: 4-8	2.12 (0.151)	2.48 (0.137)	3.19 (0.115)	4.13 (0.098)	5.21 (0.125)	6.34 (0.201)	7.06 (0.259)
Females: 9-13	2.27 (0.174)	2.63 (0.164)	3.35 (0.149)	4.30 (0.153)	5.38 (0.204)	6.51 (0.298)	7.23 (0.373)
Females: 14-18	1.85 (0.280)	2.18 (0.261)	2.87 (0.205)	3.79 (0.156)	4.90 (0.280)	6.13 (0.553)	6.98 (0.778)
Females: 19-30	2.11 (0.222)	2.47 (0.218)	3.17 (0.194)	4.13 (0.154)	5.29 (0.144)	6.55 (0.235)	7.36 (0.330)
Females: 31-50	2.19 (0.138)	2.55 (0.129)	3.26 (0.107)	4.21 (0.090)	5.39 (0.145)	6.69 (0.265)	7.54 (0.358)
Females: 19-50	2.17 (0.126)	2.52 (0.118)	3.24 (0.096)	4.19 (0.072)	5.36 (0.103)	6.63 (0.198)	7.49 (0.280)
Females: 51-70	1.93 (0.105)	2.29 (0.101)	3.02 (0.096)	4.03 (0.117)	5.30 (0.190)	6.74 (0.303)	7.71 (0.391)
Females: 71 and over	1.77 (0.118)	2.13 (0.116)	2.87 (0.110)	3.92 (0.121)	5.25 (0.194)	6.74 (0.320)	7.78 (0.429)
Females: 50 and over	1.88 (0.076)	2.23 (0.073)	2.97 (0.070)	3.99 (0.080)	5.29 (0.133)	6.74 (0.222)	7.74 (0.293)
Females: 19 and over	2.04 (0.071)	2.40 (0.069)	3.12 (0.064)	4.10 (0.067)	5.34 (0.094)	6.70 (0.146)	7.64 (0.195)
All individuals 1 and over	2.29 (0.050)	2.73 (0.050)	3.62 (0.052)	4.86 (0.057)	6.43 (0.077)	8.15 (0.112)	9.33 (0.143)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Vitamin C (mg/day) - all individuals

Vitamin C (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	29.5 (4.26)	37.7 (4.24)	56.1 (3.85)	83.3 (3.61)	119.2 (5.78)	161.4 (11.02)	190.7 (15.40)
Males: 4-8	37.2 (5.18)	44.7 (5.04)	59.9 (4.66)	80.7 (3.84)	106.4 (3.59)	134.4 (5.35)	153.4 (7.26)
Males: 9-13	24.6 (4.29)	31.4 (4.54)	46.2 (4.86)	68.2 (5.24)	97.0 (6.52)	130.1 (9.42)	153.7 (12.36)
Males: 14-18	24.3 (2.94)	31.7 (3.05)	48.9 (3.13)	75.2 (3.85)	112.3 (6.88)	157.8 (12.73)	190.3 (17.59)
Males: 19-30	28.0 (4.10)	36.6 (4.25)	55.6 (4.27)	85.3 (4.54)	126.8 (7.23)	176.3 (12.78)	212.1 (17.65)
Males: 31-50	22.7 (2.27)	31.0 (2.58)	49.9 (3.02)	80.1 (3.62)	123.5 (5.17)	177.1 (8.19)	215.5 (10.97)
Males: 19-50	24.4 (2.00)	32.8 (2.24)	52.0 (2.63)	82.2 (3.06)	124.5 (3.94)	175.5 (5.89)	214.1 (7.80)
Males: 51-70	25.5 (2.79)	33.5 (2.94)	51.2 (2.88)	78.1 (2.77)	114.3 (3.90)	157.3 (7.05)	186.9 (9.72)
Males: 71 and over	22.4 (1.56)	30.3 (1.74)	48.4 (2.26)	76.1 (3.17)	113.8 (4.95)	158.1 (7.73)	189.6 (9.82)
Males: 50 and over	24.6 (2.19)	32.5 (2.34)	50.7 (2.37)	77.8 (2.37)	114.3 (3.43)	156.9 (5.96)	187.5 (8.23)
Males: 19 and over	24.7 (1.40)	32.8 (1.58)	51.3 (1.83)	80.3 (2.19)	120.8 (2.89)	169.3 (4.43)	204.6 (5.82)
Females: 1-3	21.5 (2.25)	29.1 (2.62)	47.2 (3.20)	75.3 (3.90)	115.1 (5.44)	164.7 (9.16)	200.3 (12.69)
Females: 4-8	37.8 (5.17)	44.5 (5.02)	58.2 (4.62)	76.9 (4.17)	99.7 (4.97)	124.5 (7.71)	140.7 (9.99)
Females: 9-13	21.2 (2.76)	26.9 (2.89)	40.3 (2.97)	60.8 (3.18)	88.6 (4.54)	122.5 (8.19)	146.3 (11.33)
Females: 14-18	28.1 (5.51)	34.5 (5.52)	48.3 (5.23)	67.9 (4.54)	92.5 (5.12)	121.0 (8.65)	141.3 (12.33)
Females: 19-30	21.7 (2.81)	28.4 (3.03)	43.1 (3.20)	66.0 (3.38)	97.6 (4.45)	135.2 (7.38)	161.5 (10.33)
Females: 31-50	18.4 (1.95)	25.0 (2.28)	40.1 (2.83)	64.0 (3.50)	98.0 (4.71)	140.1 (6.66)	169.7 (8.57)
Females: 19-50	19.5 (1.72)	26.1 (1.94)	41.2 (2.40)	64.7 (2.94)	97.7 (3.83)	137.7 (5.32)	166.7 (6.74)
Females: 51-70	25.1 (2.86)	32.8 (3.15)	49.8 (3.60)	75.4 (3.83)	109.4 (4.12)	150.0 (5.01)	178.4 (6.18)
Females: 71 and over	22.0 (1.62)	29.1 (1.71)	44.6 (1.77)	67.7 (1.94)	98.0 (2.96)	132.5 (5.08)	156.6 (6.92)
Females: 50 and over	24.2 (1.92)	31.6 (2.05)	48.1 (2.32)	72.9 (2.55)	105.9 (3.16)	144.5 (4.35)	171.6 (5.42)
Females: 19 and over	21.1 (1.28)	28.1 (1.46)	43.8 (1.76)	68.1 (2.18)	101.8 (2.91)	141.9 (4.14)	170.9 (5.25)
All individuals 1 and over	23.5 (0.99)	31.0 (1.14)	47.7 (1.39)	73.7 (1.69)	109.2 (2.14)	151.1 (2.81)	181.6 (3.50)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.
All individuals.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data.
Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Vitamin C (mg/day) - smokers

SMOKERS: Vitamin C (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups for smokers in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 20-30	21.5* (7.72)	29.2 (8.07)	47.0 (8.00)	76.6 (7.36)	120.5 (11.40)	175.8 (23.65)	217.4* (35.28)
Males: 31-50	18.4 (4.74)	24.6 (5.05)	38.8 (5.21)	61.5 (5.17)	94.2 (6.99)	135.1 (12.74)	164.6 (18.22)
Males: 20-50	19.3 (3.97)	26.1 (4.32)	41.8 (4.62)	67.2 (4.77)	103.7 (6.27)	149.9 (11.29)	184.9 (16.24)
Males: 51-70	20.5 (4.11)	26.8 (4.35)	40.9 (4.52)	62.9 (5.02)	93.3 (7.52)	130.6 (12.74)	156.8 (17.36)
Males: 71 and over	10.0* (3.74)	14.5* (4.20)	25.7* (4.70)	44.0 (5.27)	70.5* (7.39)	103.2* (12.40)	127.1* (17.20)
Males: 50 and over	18.5 (3.45)	24.5 (3.70)	38.3 (3.85)	59.8 (4.28)	89.6 (6.41)	125.8 (10.88)	152.4 (14.92)
Males: 20 and over	19.4 (3.07)	25.9 (3.27)	40.9 (3.44)	65.3 (3.75)	100.3 (5.61)	144.0 (10.07)	176.7 (14.18)
Females: 20-30	18.0* (5.33)	22.2 (5.42)	31.0 (5.20)	44.2 (4.76)	61.6 (6.23)	81.9 (11.47)	95.9* (16.43)
Females: 31-50	13.6 (2.95)	18.6 (3.27)	30.3 (3.72)	49.3 (4.49)	77.2 (7.15)	112.9 (12.62)	138.7 (17.48)
Females: 20-50	15.0 (2.83)	19.7 (2.98)	30.5 (3.01)	47.3 (3.20)	71.1 (5.28)	100.4 (10.14)	122.2 (14.71)
Females: 51-70	12.2* (3.43)	17.4 (4.08)	30.6 (5.26)	53.1 (6.85)	86.8 (10.15)	131.3 (16.86)	164.8* (23.03)
Females: 71 and over	11.4* (3.79)	16.6* (4.44)	29.0* (5.50)	48.6 (7.12)	75.5* (10.41)	106.8* (16.68)	128.9* (22.40)
Females: 50 and over	12.4* (2.94)	17.8 (3.41)	31.0 (4.18)	53.4 (5.05)	86.8 (7.25)	129.8 (12.45)	162.6* (17.51)
Females: 20 and over	14.6 (1.91)	19.7 (2.07)	31.5 (2.22)	50.8 (2.55)	79.1 (4.43)	114.5 (8.46)	141.3 (12.18)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.
* Estimate may be less reliable than others due to small sample size and/or large relative standard error. Smoking status determined by self-reported cigarette use. Available for those 20 years and older.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Vitamin C (mg/day) - non-smokers

NON-SMOKERS: Vitamin C (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups for non-smokers in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 20-30	31.4 (5.98)	40.4 (6.02)	59.7 (5.65)	89.2 (5.38)	129.1 (8.22)	175.5 (14.89)	208.5 (20.69)
Males: 31-50	26.1 (2.65)	35.1 (2.93)	55.5 (3.28)	87.7 (3.86)	133.1 (5.83)	188.5 (9.76)	227.8 (13.31)
Males: 20-50	27.4 (2.37)	36.5 (2.55)	56.8 (2.68)	88.1 (2.85)	131.2 (4.04)	182.5 (6.99)	220.7 (9.81)
Males: 51-70	27.8 (3.05)	36.3 (3.14)	54.7 (3.01)	82.3 (2.85)	119.0 (4.14)	161.8 (7.54)	191.0 (10.32)
Males: 71 and over	24.3 (1.67)	32.4 (1.87)	51.0 (2.50)	79.1 (3.48)	116.9 (5.26)	161.1 (7.96)	192.4 (9.96)
Males: 50 and over	26.7 (2.32)	35.0 (2.44)	53.9 (2.44)	81.7 (2.50)	118.5 (3.69)	161.0 (6.43)	191.2 (8.74)
Males: 20 and over	27.3 (1.65)	36.0 (1.77)	55.3 (1.83)	85.1 (1.96)	125.8 (2.77)	173.9 (4.86)	208.6 (6.73)
Females: 20-30	26.3 (3.45)	33.9 (3.70)	50.4 (3.91)	75.3 (4.12)	108.9 (5.01)	148.2 (7.91)	175.3 (10.97)
Females: 31-50	21.9 (2.60)	29.0 (2.87)	44.9 (3.25)	69.5 (3.66)	103.5 (4.74)	144.6 (7.04)	173.1 (9.41)
Females: 20-50	23.2 (2.35)	30.5 (2.57)	46.8 (2.96)	71.4 (3.25)	105.2 (3.86)	145.2 (5.35)	174.1 (6.90)
Females: 51-70	29.4 (3.27)	37.3 (3.50)	54.4 (3.80)	79.5 (3.90)	112.3 (4.23)	150.8 (5.63)	177.5 (7.33)
Females: 71 and over	22.9 (1.67)	30.1 (1.75)	45.8 (1.77)	69.0 (1.85)	99.3 (2.82)	133.6 (4.92)	157.6 (6.76)
Females: 50 and over	27.3 (2.01)	34.9 (2.11)	51.5 (2.31)	76.1 (2.52)	108.1 (3.23)	145.3 (4.72)	171.3 (6.07)
Females: 20 and over	24.8 (1.62)	32.3 (1.78)	48.6 (2.02)	73.1 (2.34)	106.4 (2.97)	145.2 (4.20)	173.0 (5.29)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.
Smoking status determined by self-reported cigarette use. Available for those 20 years and older.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data.
Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Vitamin C (mg/day) - adults, smokers and non-smokers

SMOKERS and NON-SMOKERS: Vitamin C (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups for smokers and non-smokers in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 20-30	27.2 (4.71)	35.7 (4.87)	54.8 (4.82)	84.7 (4.79)	126.6 (7.33)	176.8 (13.43)	213.2 (18.88)
Males: 31-50	22.7 (2.27)	30.9 (2.58)	49.8 (3.02)	80.1 (3.62)	123.5 (5.16)	177.1 (8.19)	215.5 (10.97)
Males: 20-50	24.1 (2.02)	32.5 (2.28)	51.6 (2.67)	81.8 (3.05)	124.2 (3.89)	175.5 (5.87)	214.4 (7.86)
Males: 51-70	25.5 (2.79)	33.5 (2.94)	51.2 (2.88)	78.1 (2.77)	114.3 (3.90)	157.3 (7.05)	186.9 (9.72)
Males: 71 and over	22.4 (1.56)	30.3 (1.74)	48.4 (2.26)	76.1 (3.17)	113.8 (4.95)	158.1 (7.73)	189.6 (9.82)
Males: 50 and over	24.6 (2.19)	32.5 (2.34)	50.7 (2.37)	77.8 (2.37)	114.3 (3.43)	156.9 (5.96)	187.5 (8.23)
Males: 20 and over	24.4 (1.42)	32.6 (1.61)	51.0 (1.85)	80.0 (2.18)	120.5 (2.80)	169.1 (4.28)	204.4 (5.66)
Females: 20-30	21.2 (2.96)	27.8 (3.19)	42.4 (3.40)	64.9 (3.66)	96.1 (4.83)	133.3 (7.94)	159.3 (11.03)
Females: 31-50	18.4 (1.95)	25.0 (2.28)	40.1 (2.83)	64.0 (3.50)	98.0 (4.71)	140.1 (6.66)	169.7 (8.57)
Females: 20-50	19.2 (1.71)	25.8 (1.92)	40.9 (2.38)	64.2 (2.91)	97.1 (3.80)	136.9 (5.32)	165.9 (6.76)
Females: 51-70	25.1 (2.86)	32.8 (3.15)	49.8 (3.60)	75.4 (3.83)	109.4 (4.12)	150.0 (5.01)	178.4 (6.18)
Females: 71 and over	22.0 (1.62)	29.1 (1.71)	44.6 (1.77)	67.7 (1.94)	98.0 (2.96)	132.5 (5.08)	156.6 (6.92)
Females: 50 and over	24.2 (1.92)	31.6 (2.05)	48.1 (2.32)	72.9 (2.55)	105.9 (3.16)	144.5 (4.35)	171.6 (5.42)
Females: 20 and over	21.0 (1.25)	27.9 (1.44)	43.5 (1.74)	67.8 (2.17)	101.4 (2.91)	141.3 (4.15)	170.4 (5.25)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.
Smoking status determined by self-reported cigarette use. Available for those 20 years and older.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data.
Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Vitamin D (µg/day)

Vitamin D (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	2.5 (0.27)	3.3 (0.28)	4.9 (0.28)	7.2 (0.26)	9.8 (0.30)	12.6 (0.43)	14.4 (0.56)
Males: 4-8	2.7 (0.22)	3.3 (0.21)	4.4 (0.17)	6.0 (0.15)	7.7 (0.20)	9.5 (0.33)	10.7 (0.43)
Males: 9-13	2.4 (0.30)	2.9 (0.30)	4.1 (0.29)	5.7 (0.28)	7.7 (0.31)	9.7 (0.43)	11.1 (0.56)
Males: 14-18	2.2 (0.26)	2.8 (0.27)	4.1 (0.27)	5.9 (0.28)	8.2 (0.38)	10.8 (0.61)	12.6 (0.79)
Males: 19-30	1.5 (0.14)	2.0 (0.16)	3.0 (0.17)	4.6 (0.19)	6.8 (0.24)	9.3 (0.36)	11.2 (0.48)
Males: 31-50	1.7 (0.13)	2.2 (0.14)	3.3 (0.15)	4.8 (0.20)	7.0 (0.34)	9.6 (0.57)	11.4 (0.76)
Males: 19-50	1.6 (0.08)	2.1 (0.09)	3.2 (0.10)	4.8 (0.14)	6.9 (0.24)	9.4 (0.39)	11.3 (0.54)
Males: 51-70	1.7 (0.10)	2.2 (0.11)	3.2 (0.12)	4.8 (0.15)	7.0 (0.20)	9.7 (0.32)	11.6 (0.43)
Males: 71 and over	1.8 (0.18)	2.3 (0.18)	3.3 (0.18)	4.8 (0.19)	6.8 (0.28)	9.0 (0.46)	10.7 (0.62)
Males: 50 and over	1.7 (0.09)	2.2 (0.09)	3.2 (0.10)	4.8 (0.11)	6.9 (0.15)	9.5 (0.25)	11.4 (0.34)
Males: 19 and over	1.7 (0.06)	2.1 (0.07)	3.2 (0.08)	4.8 (0.10)	6.9 (0.15)	9.5 (0.24)	11.4 (0.32)
Females: 1-3	2.8 (0.21)	3.6 (0.22)	5.2 (0.21)	7.2 (0.25)	9.6 (0.34)	12.2 (0.50)	13.9 (0.61)
Females: 4-8	2.3 (0.26)	2.8 (0.24)	3.9 (0.21)	5.2 (0.19)	6.8 (0.22)	8.4 (0.34)	9.4 (0.43)
Females: 9-13	1.8 (0.23)	2.2 (0.22)	3.2 (0.21)	4.5 (0.19)	6.2 (0.24)	7.9 (0.38)	9.1 (0.49)
Females: 14-18	1.3 (0.23)	1.7 (0.23)	2.5 (0.22)	3.6 (0.21)	5.1 (0.31)	6.9 (0.56)	8.2 (0.78)
Females: 19-30	1.3 (0.15)	1.7 (0.16)	2.4 (0.16)	3.4 (0.16)	4.8 (0.22)	6.3 (0.35)	7.4 (0.47)
Females: 31-50	1.5 (0.12)	1.8 (0.12)	2.5 (0.11)	3.6 (0.10)	5.1 (0.17)	6.7 (0.31)	7.9 (0.42)
Females: 19-50	1.4 (0.08)	1.8 (0.08)	2.5 (0.08)	3.6 (0.09)	5.0 (0.14)	6.6 (0.23)	7.7 (0.30)
Females: 51-70	1.3 (0.10)	1.7 (0.11)	2.5 (0.13)	3.8 (0.16)	5.5 (0.22)	7.5 (0.33)	9.0 (0.41)
Females: 71 and over	1.2 (0.10)	1.6 (0.10)	2.4 (0.10)	3.6 (0.11)	5.3 (0.17)	7.3 (0.30)	8.7 (0.41)
Females: 50 and over	1.3 (0.08)	1.6 (0.08)	2.5 (0.10)	3.7 (0.12)	5.4 (0.16)	7.4 (0.24)	8.9 (0.31)
Females: 19 and over	1.3 (0.05)	1.7 (0.06)	2.5 (0.06)	3.6 (0.08)	5.2 (0.13)	7.0 (0.20)	8.3 (0.26)
All individuals 1 and over	1.5 (0.04)	2.0 (0.04)	3.0 (0.05)	4.4 (0.06)	6.4 (0.09)	8.8 (0.14)	10.5 (0.18)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Vitamin E as alpha-tocopherol (mg/day)

Vitamin E as alpha-tocopherol (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	2.2 (0.20)	2.5 (0.18)	3.2 (0.14)	4.1 (0.12)	5.1 (0.19)	6.2 (0.34)	6.9 (0.45)
Males: 4-8	3.3 (0.13)	3.7 (0.11)	4.4 (0.08)	5.3 (0.09)	6.4 (0.19)	7.5 (0.33)	8.3 (0.44)
Males: 9-13	3.6 (0.25)	4.0 (0.23)	5.0 (0.19)	6.2 (0.25)	7.8 (0.48)	9.4 (0.82)	10.6 (1.11)
Males: 14-18	5.0 (0.58)	5.4 (0.52)	6.3 (0.38)	7.3 (0.28)	8.6 (0.40)	9.9 (0.71)	10.7 (0.95)
Males: 19-30	3.9 (0.27)	4.6 (0.26)	6.0 (0.24)	7.9 (0.23)	10.3 (0.32)	12.8 (0.50)	14.6 (0.66)
Males: 31-50	4.5 (0.26)	5.2 (0.24)	6.7 (0.20)	8.6 (0.25)	11.1 (0.45)	13.7 (0.73)	15.5 (0.94)
Males: 19-50	4.3 (0.21)	5.0 (0.20)	6.4 (0.19)	8.4 (0.21)	10.8 (0.32)	13.3 (0.48)	15.1 (0.63)
Males: 51-70	4.2 (0.22)	4.9 (0.20)	6.3 (0.17)	8.1 (0.14)	10.3 (0.23)	12.7 (0.44)	14.3 (0.60)
Males: 71 and over	3.4 (0.19)	4.0 (0.19)	5.3 (0.20)	7.1 (0.22)	9.4 (0.26)	11.9 (0.34)	13.7 (0.42)
Males: 50 and over	4.0 (0.17)	4.7 (0.16)	6.0 (0.14)	7.9 (0.13)	10.1 (0.19)	12.5 (0.35)	14.2 (0.48)
Males: 19 and over	4.2 (0.13)	4.9 (0.13)	6.3 (0.13)	8.2 (0.15)	10.5 (0.21)	13.1 (0.31)	14.8 (0.39)
Females: 1-3	2.2 (0.14)	2.5 (0.12)	3.1 (0.09)	3.8 (0.08)	4.6 (0.13)	5.5 (0.23)	6.1 (0.31)
Females: 4-8	3.0 (0.12)	3.4 (0.11)	4.1 (0.10)	5.2 (0.12)	6.4 (0.22)	7.7 (0.36)	8.5 (0.47)
Females: 9-13	3.6 (0.37)	4.0 (0.34)	4.8 (0.29)	5.9 (0.24)	7.1 (0.30)	8.5 (0.51)	9.4 (0.70)
Females: 14-18	3.6 (0.67)	4.1 (0.60)	4.9 (0.44)	6.0 (0.30)	7.3 (0.46)	8.6 (0.87)	9.5 (1.20)
Females: 19-30	3.1 (0.28)	3.6 (0.26)	4.7 (0.22)	6.0 (0.20)	7.7 (0.27)	9.5 (0.44)	10.7 (0.58)
Females: 31-50	3.2 (0.21)	3.8 (0.21)	5.0 (0.20)	6.6 (0.22)	8.7 (0.34)	11.0 (0.55)	12.5 (0.70)
Females: 19-50	3.2 (0.18)	3.7 (0.17)	4.9 (0.17)	6.4 (0.18)	8.3 (0.25)	10.4 (0.37)	11.9 (0.47)
Females: 51-70	3.4 (0.11)	4.0 (0.12)	5.2 (0.13)	6.9 (0.15)	9.1 (0.22)	11.8 (0.36)	13.6 (0.47)
Females: 71 and over	3.0 (0.11)	3.5 (0.11)	4.5 (0.12)	5.8 (0.13)	7.5 (0.19)	9.4 (0.28)	10.6 (0.36)
Females: 50 and over	3.2 (0.07)	3.8 (0.08)	4.9 (0.08)	6.6 (0.10)	8.7 (0.16)	11.1 (0.26)	12.8 (0.35)
Females: 19 and over	3.2 (0.11)	3.7 (0.11)	4.9 (0.11)	6.5 (0.12)	8.5 (0.16)	10.7 (0.24)	12.3 (0.31)
All individuals 1 and over	3.3 (0.08)	3.9 (0.08)	5.1 (0.09)	6.8 (0.10)	8.9 (0.13)	11.2 (0.18)	12.8 (0.23)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Vitamin K (µg/day)

Vitamin K (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	16.5 (1.16)	19.5 (1.10)	25.8 (1.01)	34.6 (1.27)	45.8 (2.34)	58.7 (4.17)	67.6 (5.62)
Males: 4-8	22.4 (1.74)	26.2 (1.57)	34.1 (1.21)	45.7 (1.64)	61.1 (3.78)	79.4 (7.11)	92.8 (9.97)
Males: 9-13	34.0 (4.76)	37.5 (4.42)	44.3 (3.79)	53.3 (3.46)	63.9 (4.64)	75.3 (7.29)	83.1 (9.66)
Males: 14-18	36.7 (5.81)	41.2 (5.40)	50.3 (4.56)	62.4 (4.07)	77.5 (5.62)	94.4 (9.36)	105.8 (12.50)
Males: 19-30	36.1 (4.66)	43.0 (4.37)	56.9 (3.65)	76.8 (3.41)	102.6 (6.17)	131.7 (11.48)	152.0 (15.82)
Males: 31-50	36.9 (2.40)	45.0 (2.50)	62.4 (2.72)	88.8 (3.86)	125.7 (6.90)	171.4 (12.14)	204.5 (16.60)
Males: 19-50	36.1 (2.14)	43.9 (2.15)	60.2 (2.24)	84.5 (3.03)	117.1 (5.32)	155.9 (9.05)	185.0 (12.32)
Males: 51-70	43.7 (3.69)	52.3 (3.84)	70.3 (3.92)	96.9 (4.04)	132.6 (5.24)	176.0 (8.78)	206.6 (12.20)
Males: 71 and over	34.9 (2.56)	41.6 (2.78)	56.2 (3.17)	78.0 (3.75)	108.2 (4.94)	145.5 (7.12)	173.4 (9.06)
Males: 50 and over	41.2 (3.08)	49.2 (3.26)	66.6 (3.40)	92.3 (3.58)	126.9 (4.36)	168.8 (6.86)	199.6 (9.57)
Males: 19 and over	38.1 (1.85)	45.9 (1.96)	62.6 (2.17)	87.5 (2.78)	121.3 (4.23)	161.9 (6.65)	191.4 (8.71)
Females: 1-3	17.4 (1.69)	20.2 (1.59)	26.4 (1.34)	35.2 (1.55)	47.0 (3.03)	61.2 (5.82)	71.3 (8.20)
Females: 4-8	25.0 (2.12)	28.3 (1.91)	34.9 (1.52)	43.9 (1.86)	55.1 (3.58)	67.7 (6.13)	76.0 (8.05)
Females: 9-13	25.7 (1.94)	29.7 (1.91)	38.3 (1.95)	50.7 (2.39)	66.7 (3.72)	85.7 (6.16)	98.8 (8.01)
Females: 14-18	25.5 (3.38)	29.8 (3.28)	39.1 (2.92)	52.3 (2.91)	69.1 (4.40)	89.0 (7.86)	103.6 (10.98)
Females: 19-30	26.0 (2.07)	32.2 (2.14)	45.7 (2.21)	66.6 (2.58)	95.9 (4.29)	132.0 (8.02)	158.0 (11.45)
Females: 31-50	32.4 (4.14)	39.4 (4.30)	54.5 (4.37)	77.3 (4.46)	109.1 (6.15)	148.6 (10.99)	176.9 (15.60)
Females: 19-50	29.9 (2.45)	36.7 (2.61)	51.3 (2.79)	73.4 (3.16)	104.0 (4.46)	142.0 (7.59)	170.4 (10.86)
Females: 51-70	40.2 (3.87)	48.4 (4.08)	66.4 (4.43)	94.0 (4.89)	132.5 (6.75)	182.0 (11.18)	219.0 (15.60)
Females: 71 and over	32.6 (2.03)	39.5 (2.08)	54.6 (2.09)	78.0 (2.76)	111.4 (4.89)	153.4 (9.06)	185.6 (12.82)
Females: 50 and over	37.4 (2.35)	45.2 (2.50)	62.3 (2.77)	88.8 (3.38)	126.1 (5.10)	173.7 (8.49)	209.9 (11.59)
Females: 19 and over	32.6 (1.99)	39.8 (2.15)	55.5 (2.39)	79.7 (2.66)	114.3 (3.18)	157.1 (4.64)	189.8 (6.31)
All individuals 1 and over	29.2 (1.09)	36.0 (1.24)	50.7 (1.53)	73.3 (2.05)	104.6 (2.87)	142.2 (4.18)	170.5 (5.31)

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Calcium (mg/day)

Calcium (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	535 (46.1)	627 (44.6)	806 (40.4)	1030 (37.0)	1280 (37.7)	1536 (47.6)	1696 (58.9)
Males: 4-8	598 (36.6)	674 (32.7)	814 (25.3)	991 (20.4)	1190 (29.1)	1393 (48.9)	1523 (65.2)
Males: 9-13	648 (52.5)	731 (49.7)	888 (45.2)	1090 (43.3)	1321 (49.0)	1558 (64.6)	1716 (78.7)
Males: 14-18	667 (47.1)	764 (45.2)	954 (40.5)	1194 (41.4)	1478 (55.3)	1776 (84.3)	1967 (104.9)
Males: 19-30	584 (32.5)	681 (31.8)	871 (30.5)	1126 (30.7)	1438 (36.4)	1769 (50.7)	1991 (63.2)
Males: 31-50	590 (20.9)	683 (20.1)	861 (20.0)	1098 (23.7)	1383 (35.9)	1689 (53.4)	1888 (65.9)
Males: 19-50	587 (20.3)	681 (19.6)	866 (19.7)	1110 (19.9)	1402 (24.5)	1710 (35.2)	1925 (45.1)
Males: 51-70	479 (20.6)	565 (20.9)	736 (21.6)	972 (22.8)	1264 (27.8)	1590 (39.4)	1805 (48.3)
Males: 71 and over	454 (22.1)	521 (21.0)	655 (19.3)	830 (21.2)	1040 (29.8)	1264 (45.4)	1413 (56.8)
Males: 50 and over	467 (15.9)	549 (16.2)	714 (16.7)	938 (19.3)	1211 (25.2)	1511 (34.9)	1715 (44.2)
Males: 19 and over	535 (12.6)	625 (13.0)	800 (13.5)	1041 (14.6)	1334 (17.3)	1649 (23.3)	1863 (29.6)
Females: 1-3	536 (29.0)	619 (27.5)	785 (25.5)	996 (30.1)	1242 (43.6)	1502 (64.9)	1670 (79.9)
Females: 4-8	533 (31.4)	603 (28.0)	737 (23.9)	909 (24.2)	1104 (34.0)	1305 (52.4)	1430 (66.4)
Females: 9-13	552 (38.9)	620 (33.2)	754 (23.9)	925 (21.6)	1118 (42.0)	1318 (74.7)	1444 (98.3)
Females: 14-18	462 (49.4)	532 (45.2)	672 (35.4)	852 (26.4)	1059 (39.6)	1280 (74.2)	1429 (101.0)
Females: 19-30	514 (46.3)	580 (41.5)	705 (31.9)	864 (21.8)	1047 (27.1)	1234 (49.3)	1352 (65.9)
Females: 31-50	436 (19.0)	510 (18.8)	655 (18.6)	845 (20.3)	1074 (27.6)	1318 (38.9)	1474 (47.9)
Females: 19-50	460 (19.0)	532 (17.9)	672 (16.8)	852 (16.6)	1064 (21.7)	1286 (31.8)	1432 (40.0)
Females: 51-70	429 (16.8)	496 (17.0)	630 (16.6)	807 (16.8)	1018 (20.8)	1248 (31.1)	1400 (39.3)
Females: 71 and over	377 (14.3)	441 (13.2)	566 (12.2)	734 (12.3)	935 (15.4)	1150 (21.9)	1294 (28.3)
Females: 50 and over	410 (14.0)	476 (13.6)	608 (12.5)	784 (12.0)	995 (15.3)	1222 (23.1)	1373 (30.6)
Females: 19 and over	439 (13.1)	509 (12.8)	644 (12.0)	823 (12.3)	1036 (15.8)	1261 (23.1)	1413 (29.6)
All individuals 1 and over	485 (10.0)	566 (10.1)	726 (10.0)	940 (9.9)	1199 (10.9)	1474 (14.6)	1659 (18.5)

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Phosphorus (mg/day)

Phosphorus (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males:1-3	630 (42.9)	716 (39.7)	878 (33.8)	1073 (30.0)	1284 (28.6)	1494 (33.5)	1624 (39.7)
Males: 4-8	784 (27.4)	855 (24.3)	985 (18.7)	1145 (17.5)	1322 (25.7)	1499 (40.7)	1612 (52.4)
Males: 9-13	916 (37.8)	1004 (34.5)	1166 (31.8)	1366 (34.0)	1587 (43.3)	1805 (58.2)	1947 (70.9)
Males: 14-18	1005 (72.7)	1114 (66.1)	1319 (52.7)	1569 (46.6)	1853 (64.4)	2140 (103.5)	2320 (131.1)
Males: 19-30	979 (37.6)	1105 (34.0)	1336 (30.7)	1624 (34.7)	1948 (49.5)	2268 (69.4)	2470 (83.0)
Males: 31-50	1036 (27.5)	1164 (23.9)	1396 (21.1)	1681 (25.0)	2001 (39.4)	2320 (57.3)	2517 (69.7)
Males: 19-50	1009 (24.4)	1139 (22.0)	1373 (20.2)	1662 (22.7)	1980 (31.7)	2295 (44.3)	2500 (53.6)
Males: 51-70	874 (25.7)	992 (24.4)	1212 (23.5)	1488 (23.7)	1799 (29.1)	2117 (41.1)	2314 (50.2)
Males: 71 and over	791 (28.3)	875 (26.9)	1034 (25.6)	1230 (28.3)	1449 (36.0)	1669 (48.4)	1810 (57.1)
Males: 50 and over	834 (21.5)	947 (21.0)	1161 (20.0)	1426 (21.1)	1723 (26.1)	2022 (34.3)	2215 (42.4)
Males: 19 and over	930 (18.6)	1055 (17.6)	1283 (15.9)	1570 (15.9)	1891 (18.8)	2207 (25.1)	2412 (30.6)
Females: 1-3	650 (30.2)	719 (27.9)	854 (23.9)	1021 (23.3)	1213 (30.9)	1414 (47.6)	1543 (59.7)
Females: 4-8	738 (23.8)	809 (21.1)	942 (18.7)	1106 (20.9)	1288 (30.1)	1470 (44.7)	1582 (55.3)
Females: 9-13	804 (36.7)	874 (30.5)	1007 (23.1)	1167 (26.8)	1338 (44.8)	1507 (68.6)	1609 (84.2)
Females: 14-18	724 (75.4)	801 (68.6)	946 (54.3)	1122 (38.1)	1314 (35.6)	1509 (57.9)	1636 (77.8)
Females: 19-30	742 (45.9)	821 (39.9)	963 (30.4)	1138 (22.9)	1330 (26.7)	1520 (39.1)	1636 (48.0)
Females: 31-50	706 (34.5)	798 (31.6)	966 (26.0)	1171 (19.6)	1398 (20.8)	1626 (31.4)	1764 (40.5)
Females: 19-50	716 (28.1)	804 (25.2)	965 (20.2)	1159 (15.7)	1374 (17.5)	1586 (27.3)	1721 (35.2)
Females: 51-70	712 (23.4)	793 (21.7)	944 (18.5)	1130 (17.7)	1336 (24.8)	1546 (37.9)	1678 (46.8)
Females: 71 and over	588 (18.2)	665 (16.0)	809 (13.7)	989 (14.8)	1189 (20.8)	1388 (29.4)	1516 (36.6)
Females: 50 and over	665 (16.9)	746 (15.5)	898 (12.9)	1087 (12.5)	1296 (17.9)	1508 (27.9)	1644 (35.4)
Females: 19 and over	694 (20.9)	779 (19.0)	935 (15.4)	1128 (12.4)	1343 (14.5)	1555 (22.0)	1693 (28.4)
All individuals 1 and over	745 (13.6)	846 (12.9)	1040 (11.6)	1293 (10.3)	1587 (11.4)	1887 (15.8)	2078 (19.8)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Magnesium (mg/day)

Magnesium (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	120 (7.0)	134 (6.1)	161 (4.5)	194 (3.9)	230 (4.8)	266 (7.1)	288 (8.8)
Males: 4-8	149 (3.3)	161 (2.9)	184 (2.5)	213 (3.1)	245 (4.9)	277 (7.3)	297 (9.2)
Males: 9-13	157 (5.8)	173 (5.1)	205 (4.8)	244 (5.9)	289 (9.4)	334 (14.0)	364 (17.7)
Males: 14-18	181 (13.8)	200 (12.8)	238 (10.2)	285 (8.1)	340 (9.9)	397 (16.7)	435 (22.1)
Males: 19-30	186 (8.8)	212 (8.3)	261 (7.6)	324 (8.1)	399 (11.7)	476 (17.8)	526 (22.6)
Males: 31-50	204 (6.0)	232 (5.3)	284 (4.7)	351 (6.2)	429 (10.5)	511 (15.7)	563 (19.6)
Males: 19-50	196 (4.8)	223 (4.6)	275 (4.6)	341 (5.9)	418 (8.6)	498 (12.5)	551 (15.6)
Males: 51-70	194 (6.6)	219 (6.4)	267 (5.8)	327 (5.1)	397 (6.2)	469 (9.9)	514 (13.2)
Males: 71 and over	160 (4.5)	180 (4.3)	221 (4.7)	274 (6.0)	337 (8.1)	405 (11.7)	450 (14.4)
Males: 50 and over	182 (4.8)	207 (4.6)	254 (4.5)	314 (4.7)	384 (6.0)	456 (8.3)	503 (10.5)
Males: 19 and over	191 (3.4)	217 (3.4)	266 (3.5)	331 (4.0)	406 (5.6)	483 (7.9)	534 (9.7)
Females: 1-3	118 (5.8)	130 (5.1)	153 (4.0)	181 (4.0)	213 (5.7)	246 (8.5)	267 (10.4)
Females: 4-8	136 (3.5)	149 (2.9)	172 (2.6)	201 (3.4)	234 (5.7)	266 (9.0)	286 (11.4)
Females: 9-13	147 (6.5)	160 (5.5)	185 (3.8)	217 (4.7)	252 (9.0)	287 (14.8)	308 (18.6)
Females: 14-18	127 (7.5)	143 (7.0)	176 (6.2)	217 (7.1)	263 (10.5)	311 (15.6)	343 (19.3)
Females: 19-30	149 (9.9)	167 (8.9)	199 (7.1)	240 (5.6)	285 (6.2)	331 (9.3)	360 (12.0)
Females: 31-50	145 (7.7)	166 (7.4)	207 (6.9)	261 (6.3)	324 (6.9)	390 (8.9)	432 (10.7)
Females: 19-50	144 (6.5)	165 (6.2)	204 (5.5)	253 (5.0)	310 (5.5)	370 (7.1)	409 (8.7)
Females: 51-70	155 (5.5)	176 (5.1)	215 (4.5)	264 (4.2)	321 (6.0)	380 (9.4)	417 (11.8)
Females: 71 and over	133 (3.0)	151 (3.0)	185 (3.0)	227 (3.6)	277 (4.5)	328 (5.8)	361 (7.0)
Females: 50 and over	146 (4.4)	166 (4.1)	204 (3.6)	253 (3.4)	308 (4.5)	366 (6.8)	404 (8.6)
Females: 19 and over	146 (5.0)	166 (4.7)	204 (4.2)	253 (3.8)	310 (4.0)	369 (5.3)	408 (6.5)
All individuals 1 and over	147 (2.6)	170 (2.7)	213 (2.8)	270 (3.1)	339 (3.7)	410 (4.6)	457 (5.5)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Iron (mg/day)

Iron (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	5.4 (0.29)	6.2 (0.27)	7.9 (0.25)	10.1 (0.30)	12.7 (0.41)	15.4 (0.62)	17.1 (0.79)
Males: 4-8	9.0 (0.42)	9.8 (0.37)	11.1 (0.29)	12.8 (0.25)	14.7 (0.37)	16.7 (0.61)	18.0 (0.81)
Males: 9-13	9.8 (0.47)	10.9 (0.41)	12.8 (0.35)	15.2 (0.36)	17.9 (0.55)	20.6 (0.83)	22.4 (1.07)
Males: 14-18	10.3 (0.61)	11.5 (0.57)	13.9 (0.49)	17.0 (0.44)	20.7 (0.54)	24.7 (0.88)	27.3 (1.15)
Males: 19-30	9.8 (0.60)	11.2 (0.58)	13.9 (0.54)	17.4 (0.50)	21.4 (0.55)	25.5 (0.72)	28.1 (0.88)
Males: 31-50	9.8 (0.27)	11.3 (0.27)	14.0 (0.27)	17.5 (0.34)	21.8 (0.52)	26.3 (0.76)	29.2 (0.94)
Males: 19-50	9.7 (0.27)	11.2 (0.26)	14.0 (0.27)	17.5 (0.32)	21.6 (0.43)	25.9 (0.59)	28.8 (0.72)
Males: 51-70	9.5 (0.37)	10.7 (0.37)	13.2 (0.36)	16.4 (0.32)	20.3 (0.35)	24.3 (0.54)	26.9 (0.73)
Males: 71 and over	8.4 (0.33)	9.7 (0.33)	12.1 (0.33)	15.4 (0.36)	19.4 (0.47)	23.8 (0.66)	26.8 (0.84)
Males: 50 and over	9.2 (0.28)	10.4 (0.29)	13.0 (0.28)	16.2 (0.28)	20.1 (0.32)	24.2 (0.50)	26.9 (0.67)
Males: 19 and over	9.5 (0.20)	10.9 (0.20)	13.5 (0.21)	17.0 (0.24)	21.1 (0.30)	25.3 (0.40)	28.2 (0.49)
Females: 1-3	5.3 (0.28)	5.9 (0.26)	7.3 (0.25)	9.1 (0.29)	11.2 (0.41)	13.5 (0.58)	15.0 (0.70)
Females: 4-8	7.3 (0.26)	8.1 (0.24)	9.7 (0.23)	11.8 (0.27)	14.2 (0.39)	16.8 (0.58)	18.4 (0.74)
Females: 9-13	8.6 (0.52)	9.5 (0.47)	11.2 (0.38)	13.5 (0.34)	16.0 (0.49)	18.6 (0.79)	20.3 (1.02)
Females: 14-18	6.9 (0.59)	7.9 (0.55)	9.8 (0.49)	12.4 (0.46)	15.4 (0.57)	18.6 (0.82)	20.8 (1.03)
Females: 19-30	7.6 (0.50)	8.5 (0.45)	10.2 (0.35)	12.5 (0.23)	15.2 (0.26)	18.1 (0.50)	19.9 (0.68)
Females: 31-50	7.6 (0.44)	8.6 (0.42)	10.5 (0.36)	12.9 (0.30)	15.7 (0.31)	18.6 (0.42)	20.4 (0.52)
Females: 19-50	7.6 (0.35)	8.6 (0.33)	10.4 (0.28)	12.8 (0.24)	15.5 (0.24)	18.4 (0.35)	20.2 (0.45)
Females: 51-70	7.3 (0.22)	8.3 (0.22)	10.1 (0.21)	12.5 (0.23)	15.4 (0.35)	18.5 (0.53)	20.5 (0.67)
Females: 71 and over	6.7 (0.19)	7.6 (0.18)	9.5 (0.20)	12.0 (0.26)	15.0 (0.35)	18.2 (0.48)	20.4 (0.57)
Females: 50 and over	7.1 (0.19)	8.0 (0.18)	9.9 (0.17)	12.3 (0.18)	15.3 (0.24)	18.4 (0.35)	20.5 (0.46)
Females: 19 and over	7.4 (0.25)	8.3 (0.24)	10.2 (0.21)	12.6 (0.18)	15.4 (0.20)	18.4 (0.28)	20.4 (0.37)
All individuals 1 and over	7.7 (0.15)	8.8 (0.15)	11.1 (0.14)	14.2 (0.13)	17.8 (0.17)	21.7 (0.25)	24.3 (0.32)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Zinc (mg/day)

Zinc (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	4.8 (0.35)	5.4 (0.31)	6.4 (0.25)	7.8 (0.22)	9.3 (0.29)	10.9 (0.42)	11.9 (0.53)
Males: 4-8	6.6 (0.25)	7.1 (0.22)	8.2 (0.18)	9.5 (0.19)	11.0 (0.29)	12.5 (0.46)	13.5 (0.61)
Males: 9-13	8.1 (0.60)	8.8 (0.52)	10.0 (0.39)	11.5 (0.32)	13.2 (0.46)	14.8 (0.74)	15.9 (0.95)
Males: 14-18	8.4 (0.72)	9.3 (0.62)	11.2 (0.40)	13.4 (0.29)	16.1 (0.65)	18.9 (1.25)	20.7 (1.65)
Males: 19-30	8.1 (0.58)	9.2 (0.53)	11.3 (0.44)	14.0 (0.41)	17.1 (0.57)	20.2 (0.85)	22.3 (1.06)
Males: 31-50	9.0 (0.39)	10.1 (0.37)	12.1 (0.32)	14.7 (0.29)	17.8 (0.37)	21.0 (0.58)	23.0 (0.75)
Males: 19-50	8.6 (0.39)	9.7 (0.37)	11.8 (0.31)	14.5 (0.26)	17.6 (0.32)	20.7 (0.48)	22.8 (0.64)
Males: 51-70	7.4 (0.31)	8.4 (0.31)	10.3 (0.32)	13.0 (0.34)	16.2 (0.45)	19.8 (0.69)	22.1 (0.90)
Males: 71 and over	6.5 (0.32)	7.3 (0.32)	8.9 (0.33)	11.1 (0.36)	13.9 (0.44)	17.0 (0.59)	19.2 (0.73)
Males: 50 and over	7.1 (0.28)	8.1 (0.29)	10.0 (0.29)	12.5 (0.32)	15.7 (0.42)	19.1 (0.64)	21.5 (0.84)
Males: 19 and over	7.9 (0.24)	9.0 (0.23)	11.0 (0.21)	13.7 (0.19)	16.9 (0.21)	20.2 (0.30)	22.5 (0.39)
Females: 1-3	4.6 (0.17)	5.1 (0.17)	6.1 (0.16)	7.3 (0.19)	8.8 (0.25)	10.4 (0.36)	11.4 (0.44)
Females: 4-8	5.0 (0.19)	5.6 (0.18)	6.9 (0.18)	8.5 (0.22)	10.4 (0.30)	12.5 (0.42)	13.8 (0.51)
Females: 9-13	6.8 (0.50)	7.4 (0.43)	8.5 (0.30)	9.8 (0.23)	11.3 (0.41)	12.9 (0.72)	13.9 (0.95)
Females: 14-18	6.0 (0.58)	6.5 (0.51)	7.6 (0.39)	8.8 (0.28)	10.2 (0.37)	11.5 (0.64)	12.5 (0.84)
Females: 19-30	6.1 (0.43)	6.7 (0.38)	8.0 (0.29)	9.5 (0.19)	11.3 (0.22)	13.1 (0.41)	14.2 (0.55)
Females: 31-50	5.8 (0.29)	6.6 (0.27)	8.0 (0.23)	9.8 (0.19)	12.0 (0.22)	14.2 (0.34)	15.6 (0.44)
Females: 19-50	5.9 (0.25)	6.6 (0.23)	8.0 (0.18)	9.7 (0.14)	11.7 (0.17)	13.8 (0.28)	15.1 (0.38)
Females: 51-70	5.7 (0.18)	6.4 (0.18)	7.7 (0.18)	9.4 (0.20)	11.4 (0.29)	13.6 (0.42)	15.1 (0.52)
Females: 71 and over	5.0 (0.16)	5.7 (0.16)	7.0 (0.17)	8.7 (0.21)	10.9 (0.32)	13.3 (0.46)	15.0 (0.59)
Females: 50 and over	5.4 (0.15)	6.1 (0.14)	7.4 (0.14)	9.2 (0.16)	11.3 (0.21)	13.6 (0.30)	15.1 (0.39)
Females: 19 and over	5.7 (0.17)	6.4 (0.16)	7.8 (0.14)	9.5 (0.13)	11.6 (0.16)	13.7 (0.23)	15.2 (0.30)
All individuals 1 and over	6.1 (0.13)	6.9 (0.12)	8.6 (0.11)	10.9 (0.11)	13.8 (0.13)	16.8 (0.19)	18.8 (0.24)

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Copper (mg/day)

Copper (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	0.5 (0.02)	0.5 (0.02)	0.6 (0.02)	0.8 (0.02)	0.9 (0.03)	1.1 (0.04)	1.2 (0.05)
Males: 4-8	0.6 (0.02)	0.7 (0.02)	0.8 (0.02)	0.9 (0.02)	1.1 (0.03)	1.3 (0.04)	1.4 (0.05)
Males: 9-13	0.7 (0.03)	0.7 (0.03)	0.9 (0.02)	1.1 (0.02)	1.3 (0.04)	1.5 (0.07)	1.6 (0.09)
Males: 14-18	0.8 (0.05)	0.9 (0.05)	1.0 (0.04)	1.3 (0.04)	1.5 (0.07)	1.8 (0.11)	2.0 (0.14)
Males: 19-30	0.9 (0.05)	1.0 (0.04)	1.2 (0.04)	1.4 (0.04)	1.8 (0.05)	2.1 (0.09)	2.4 (0.11)
Males: 31-50	0.9 (0.03)	1.0 (0.03)	1.2 (0.02)	1.5 (0.02)	1.9 (0.04)	2.3 (0.07)	2.5 (0.09)
Males: 19-50	0.9 (0.03)	1.0 (0.02)	1.2 (0.02)	1.5 (0.02)	1.8 (0.04)	2.2 (0.06)	2.5 (0.07)
Males: 51-70	0.9 (0.04)	0.9 (0.03)	1.1 (0.03)	1.4 (0.03)	1.7 (0.03)	2.1 (0.06)	2.3 (0.08)
Males: 71 and over	0.7 (0.02)	0.8 (0.02)	1.0 (0.03)	1.2 (0.03)	1.5 (0.04)	1.8 (0.05)	2.1 (0.06)
Males: 50 and over	0.8 (0.03)	0.9 (0.03)	1.1 (0.02)	1.4 (0.02)	1.7 (0.03)	2.0 (0.05)	2.3 (0.06)
Males: 19 and over	0.8 (0.02)	0.9 (0.02)	1.2 (0.01)	1.4 (0.02)	1.8 (0.02)	2.2 (0.03)	2.4 (0.04)
Females: 1-3	0.4 (0.02)	0.5 (0.02)	0.6 (0.01)	0.7 (0.02)	0.9 (0.02)	1.0 (0.03)	1.2 (0.04)
Females: 4-8	0.6 (0.02)	0.7 (0.02)	0.8 (0.02)	0.9 (0.01)	1.0 (0.02)	1.2 (0.03)	1.3 (0.04)
Females: 9-13	0.6 (0.04)	0.7 (0.04)	0.8 (0.03)	1.0 (0.02)	1.1 (0.03)	1.3 (0.05)	1.4 (0.07)
Females: 14-18	0.6 (0.05)	0.6 (0.04)	0.8 (0.03)	1.0 (0.03)	1.2 (0.05)	1.4 (0.09)	1.5 (0.11)
Females: 19-30	0.6 (0.04)	0.7 (0.03)	0.9 (0.03)	1.0 (0.02)	1.3 (0.03)	1.5 (0.05)	1.7 (0.07)
Females: 31-50	0.7 (0.04)	0.7 (0.03)	0.9 (0.03)	1.1 (0.03)	1.4 (0.03)	1.7 (0.05)	1.9 (0.06)
Females: 19-50	0.7 (0.03)	0.7 (0.03)	0.9 (0.02)	1.1 (0.02)	1.4 (0.02)	1.6 (0.03)	1.8 (0.04)
Females: 51-70	0.7 (0.02)	0.8 (0.02)	0.9 (0.02)	1.2 (0.02)	1.4 (0.03)	1.8 (0.05)	2.0 (0.06)
Females: 71 and over	0.6 (0.02)	0.7 (0.02)	0.8 (0.02)	1.0 (0.02)	1.2 (0.03)	1.5 (0.04)	1.6 (0.05)
Females: 50 and over	0.7 (0.02)	0.7 (0.02)	0.9 (0.02)	1.1 (0.02)	1.4 (0.03)	1.7 (0.04)	1.9 (0.05)
Females: 19 and over	0.7 (0.02)	0.7 (0.02)	0.9 (0.02)	1.1 (0.02)	1.4 (0.02)	1.7 (0.03)	1.9 (0.04)
All individuals 1 and over	0.6 (0.01)	0.7 (0.01)	0.9 (0.01)	1.2 (0.01)	1.5 (0.02)	1.8 (0.02)	2.1 (0.03)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Selenium (µg/day)

Selenium (µg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	40 (3.1)	45 (2.8)	54 (2.2)	65 (1.7)	77 (1.8)	90 (2.8)	97 (3.6)
Males: 4-8	54 (2.0)	59 (1.8)	68 (1.4)	79 (1.0)	92 (1.3)	105 (2.3)	113 (3.2)
Males: 9-13	74 (5.6)	80 (4.6)	90 (2.8)	103 (2.2)	116 (4.6)	129 (7.8)	137 (10.0)
Males: 14-18	75 (4.3)	85 (4.0)	104 (3.7)	127 (4.3)	153 (6.4)	180 (9.3)	197 (11.4)
Males: 19-30	89 (5.1)	99 (4.5)	117 (3.5)	140 (2.8)	165 (3.9)	190 (6.2)	206 (7.8)
Males: 31-50	87 (3.5)	97 (3.0)	116 (2.4)	138 (1.9)	163 (2.7)	188 (4.4)	204 (5.6)
Males: 19-50	88 (3.0)	98 (2.6)	116 (2.2)	139 (1.8)	164 (2.3)	188 (3.4)	204 (4.3)
Males: 51-70	77 (2.8)	86 (2.5)	103 (2.2)	123 (2.2)	146 (3.0)	170 (4.5)	184 (5.7)
Males: 71 and over	65 (2.9)	71 (2.8)	84 (2.6)	98 (2.5)	115 (2.7)	132 (3.3)	142 (3.8)
Males: 50 and over	72 (2.1)	81 (1.9)	97 (1.7)	117 (1.8)	140 (2.5)	162 (3.6)	177 (4.5)
Males: 19 and over	80 (2.0)	90 (1.9)	108 (1.7)	131 (1.5)	155 (1.7)	180 (2.3)	196 (2.9)
Females: 1-3	42 (2.6)	46 (2.4)	54 (1.9)	65 (1.5)	76 (1.7)	88 (2.7)	96 (3.5)
Females: 4-8	53 (2.3)	58 (1.9)	67 (1.6)	78 (1.8)	90 (2.7)	102 (4.0)	109 (4.9)
Females: 9-13	63 (3.4)	68 (2.8)	77 (2.0)	88 (2.3)	99 (4.0)	110 (6.2)	117 (7.6)
Females: 14-18	57 (4.9)	63 (4.5)	74 (3.6)	87 (2.8)	102 (2.9)	117 (4.2)	126 (5.4)
Females: 19-30	60 (3.1)	66 (2.7)	77 (2.1)	91 (1.6)	105 (1.9)	120 (2.9)	128 (3.6)
Females: 31-50	60 (3.7)	67 (3.2)	79 (2.4)	94 (1.7)	110 (2.4)	127 (4.1)	137 (5.4)
Females: 19-50	60 (2.3)	66 (2.0)	78 (1.5)	93 (1.2)	109 (1.8)	124 (2.9)	134 (3.7)
Females: 51-70	58 (2.2)	64 (2.1)	75 (1.9)	88 (1.8)	104 (2.3)	119 (3.2)	129 (3.9)
Females: 71 and over	46 (2.5)	52 (2.1)	63 (1.7)	77 (1.6)	93 (2.3)	109 (3.7)	119 (4.7)
Females: 50 and over	53 (1.7)	59 (1.6)	71 (1.4)	85 (1.2)	101 (1.5)	117 (2.1)	127 (2.7)
Females: 19 and over	57 (1.7)	63 (1.6)	75 (1.2)	89 (1.0)	105 (1.4)	121 (2.2)	132 (2.8)
All individuals 1 and over	58 (1.0)	66 (1.0)	81 (0.9)	102 (0.9)	127 (1.2)	152 (1.8)	168 (2.2)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Sodium (mg/day)

Sodium (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	1170 (88.6)	1319 (81.5)	1605 (65.5)	1963 (51.4)	2368 (48.4)	2787 (69.8)	3053 (93.9)
Males: 4-8	1772 (61.9)	1944 (59.4)	2263 (52.4)	2664 (48.8)	3119 (53.7)	3584 (71.2)	3885 (90.2)
Males: 9-13	2343 (103.5)	2550 (91.2)	2933 (76.6)	3407 (87.7)	3936 (136.4)	4464 (206.1)	4809 (260.8)
Males: 14-18	2425 (142.7)	2735 (136.3)	3341 (121.6)	4106 (126.0)	5009 (174.6)	5958 (262.6)	6569 (328.1)
Males: 19-30	2644 (112.4)	2980 (106.7)	3598 (98.3)	4375 (97.0)	5252 (120.5)	6122 (160.7)	6676 (190.6)
Males: 31-50	2748 (62.6)	3074 (59.7)	3674 (58.4)	4422 (66.5)	5275 (93.2)	6141 (133.4)	6684 (162.2)
Males: 19-50	2697 (70.1)	3032 (65.0)	3648 (60.6)	4410 (64.0)	5264 (83.5)	6114 (113.6)	6676 (136.2)
Males: 51-70	2454 (64.9)	2738 (60.4)	3267 (58.8)	3927 (67.7)	4670 (98.0)	5430 (145.6)	5902 (181.5)
Males: 71 and over	2079 (76.9)	2282 (73.3)	2664 (65.7)	3132 (72.1)	3655 (99.0)	4180 (139.3)	4515 (168.0)
Males: 50 and over	2294 (54.6)	2571 (51.6)	3087 (50.3)	3732 (58.2)	4450 (84.2)	5174 (121.5)	5642 (152.6)
Males: 19 and over	2500 (36.5)	2820 (35.8)	3406 (35.6)	4147 (42.2)	4980 (57.8)	5810 (79.8)	6346 (95.9)
Females: 1-3	1189 (75.4)	1333 (65.1)	1614 (47.1)	1955 (38.2)	2339 (53.8)	2732 (86.3)	2979 (108.4)
Females: 4-8	1666 (77.6)	1825 (70.1)	2128 (56.7)	2512 (44.3)	2949 (54.6)	3398 (89.0)	3681 (115.3)
Females: 9-13	2052 (89.2)	2218 (81.2)	2534 (68.2)	2918 (67.1)	3332 (85.0)	3745 (118.4)	3998 (142.9)
Females: 14-18	1946 (182.3)	2137 (168.3)	2504 (135.9)	2955 (100.8)	3454 (98.0)	3967 (150.9)	4307 (201.4)
Females: 19-30	1929 (117.8)	2150 (106.7)	2552 (88.0)	3051 (67.5)	3607 (65.9)	4160 (89.7)	4501 (113.0)
Females: 31-50	1860 (86.7)	2088 (78.7)	2508 (61.7)	3026 (47.6)	3609 (65.4)	4200 (110.3)	4562 (144.2)
Females: 19-50	1884 (69.4)	2108 (62.9)	2526 (50.3)	3035 (38.7)	3606 (45.4)	4176 (72.0)	4539 (94.8)
Females: 51-70	1911 (67.4)	2096 (57.7)	2440 (42.1)	2867 (35.7)	3342 (57.8)	3831 (94.9)	4141 (119.6)
Females: 71 and over	1614 (53.6)	1788 (46.8)	2109 (38.6)	2507 (44.7)	2950 (70.4)	3392 (105.3)	3675 (131.8)
Females: 50 and over	1793 (49.2)	1979 (42.7)	2327 (30.2)	2758 (25.6)	3238 (42.2)	3725 (70.9)	4040 (91.8)
Females: 19 and over	1840 (52.7)	2051 (46.5)	2436 (34.7)	2916 (25.7)	3455 (36.5)	3993 (61.8)	4343 (82.2)
All individuals 1 and over	1845 (28.1)	2112 (25.8)	2623 (22.7)	3301 (25.3)	4108 (38.7)	4940 (59.2)	5468 (74.3)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.
Discretionary salt use at the table not included. Post-processing salt adjustment omitted for 2007-2008.

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Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Potassium (mg/day)

Potassium (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	1230 (71.0)	1382 (62.6)	1664 (48.4)	2002 (40.3)	2367 (44.7)	2727 (63.2)	2948 (77.8)
Males: 4-8	1445 (33.8)	1571 (30.6)	1801 (27.0)	2085 (29.7)	2402 (40.7)	2720 (57.1)	2923 (70.0)
Males: 9-13	1485 (55.4)	1640 (49.2)	1926 (44.0)	2278 (54.1)	2668 (84.9)	3054 (126.5)	3304 (160.1)
Males: 14-18	1555 (100.6)	1762 (97.8)	2161 (93.1)	2657 (94.3)	3232 (115.7)	3826 (167.2)	4203 (206.5)
Males: 19-30	1581 (78.7)	1824 (71.2)	2274 (63.4)	2844 (71.8)	3492 (107.7)	4136 (157.7)	4547 (193.0)
Males: 31-50	1852 (63.7)	2106 (55.9)	2576 (43.5)	3163 (44.6)	3834 (78.0)	4515 (124.2)	4940 (158.2)
Males: 19-50	1728 (48.8)	1981 (45.1)	2452 (40.8)	3044 (44.8)	3710 (64.0)	4374 (95.2)	4816 (119.3)
Males: 51-70	1844 (50.2)	2088 (48.0)	2536 (46.1)	3082 (47.7)	3680 (59.7)	4276 (83.7)	4639 (102.4)
Males: 71 and over	1640 (47.3)	1839 (45.5)	2217 (45.8)	2682 (53.6)	3204 (70.1)	3727 (93.6)	4060 (109.0)
Males: 50 and over	1772 (41.6)	2010 (40.3)	2452 (39.2)	2988 (42.5)	3574 (53.6)	4153 (71.5)	4521 (88.2)
Males: 19 and over	1749 (33.5)	1993 (32.9)	2448 (30.3)	3022 (32.5)	3664 (42.1)	4302 (58.8)	4713 (72.7)
Females: 1-3	1233 (51.4)	1362 (47.5)	1611 (42.8)	1914 (44.2)	2255 (57.0)	2607 (82.3)	2829 (99.9)
Females: 4-8	1284 (32.6)	1410 (29.0)	1647 (26.7)	1947 (29.9)	2283 (42.5)	2625 (63.3)	2838 (79.4)
Females: 9-13	1391 (75.7)	1511 (64.8)	1738 (49.4)	2013 (47.0)	2306 (73.4)	2598 (114.6)	2775 (143.3)
Females: 14-18	1174 (71.0)	1314 (67.3)	1580 (60.8)	1905 (58.9)	2256 (71.0)	2612 (95.3)	2843 (114.2)
Females: 19-30	1346 (71.2)	1496 (63.7)	1768 (51.0)	2099 (41.5)	2463 (46.5)	2820 (65.1)	3037 (80.8)
Females: 31-50	1308 (58.1)	1503 (55.4)	1863 (50.0)	2305 (43.9)	2800 (46.5)	3296 (61.7)	3598 (75.8)
Females: 19-50	1300 (49.0)	1483 (46.0)	1819 (41.1)	2230 (36.2)	2685 (37.8)	3135 (47.5)	3424 (56.9)
Females: 51-70	1464 (42.9)	1656 (39.6)	2012 (36.8)	2449 (42.2)	2926 (60.8)	3408 (87.6)	3707 (104.3)
Females: 71 and over	1290 (24.1)	1463 (24.1)	1785 (24.7)	2190 (29.7)	2647 (39.9)	3107 (53.5)	3403 (65.0)
Females: 50 and over	1397 (31.3)	1585 (28.4)	1936 (26.8)	2370 (31.2)	2848 (45.5)	3329 (65.6)	3636 (80.5)
Females: 19 and over	1337 (37.9)	1522 (34.8)	1865 (30.1)	2291 (28.3)	2764 (34.3)	3230 (47.3)	3527 (57.4)
All individuals 1 and over	1374 (26.7)	1583 (26.0)	1977 (24.6)	2486 (24.5)	3072 (28.0)	3661 (35.9)	4038 (43.3)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Caffeine (mg/day)

Caffeine (mg/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	0.1 (0.03)	0.2 (0.05)	0.6 (0.11)	1.7 (0.23)	4.7 (0.50)	10.5 (1.14)	16.5 (1.97)
Males: 4-8	1.7 (0.58)	2.5 (0.66)	4.7 (0.70)	8.6 (0.68)	15.4 (1.12)	25.1 (2.71)	33.2 (4.45)
Males: 9-13	1.4 (0.39)	2.7 (0.57)	6.9 (1.02)	17.7 (1.84)	40.5 (3.42)	81.6 (7.04)	119.6 (11.66)
Males: 14-18	2.7 (0.96)	6.0 (1.47)	17.9 (2.53)	45.9 (4.70)	97.7 (10.54)	173.5 (25.16)	237.7 (40.99)
Males: 19-30	4.9 (1.86)	12.4 (2.90)	39.4 (4.92)	95.2 (7.19)	182.9 (12.25)	296.8 (22.59)	382.7 (32.98)
Males: 31-50	11.4 (2.46)	27.4 (3.91)	76.6 (5.99)	168.0 (7.90)	306.5 (12.99)	478.5 (22.52)	607.9 (32.04)
Males: 19-50	7.3 (1.26)	18.6 (2.20)	58.5 (4.16)	138.6 (6.93)	260.0 (11.69)	419.4 (19.87)	537.8 (28.12)
Males: 51-70	15.0 (3.32)	35.4 (4.82)	95.4 (6.54)	201.2 (8.05)	357.8 (12.33)	548.0 (22.78)	689.1 (32.46)
Males: 71 and over	6.6 (1.50)	17.8 (2.83)	53.3 (5.37)	121.2 (7.82)	228.2 (10.41)	365.3 (16.70)	469.4 (24.91)
Males: 50 and over	11.4 (1.95)	28.8 (3.12)	82.1 (4.49)	180.6 (5.80)	327.1 (9.61)	508.0 (18.75)	644.9 (27.19)
Males: 19 and over	7.8 (0.99)	20.9 (1.77)	65.8 (3.12)	153.2 (4.90)	287.1 (8.77)	454.7 (15.33)	578.9 (20.88)
Females: 1-3	(0.03)	0.1 (0.06)	0.6 (0.17)	2.2 (0.35)	5.9 (0.81)	11.3 (2.05)	16.0 (3.53)
Females: 4-8	0.8 (0.23)	1.4 (0.32)	3.2 (0.50)	7.1 (0.76)	14.4 (1.60)	25.7 (3.79)	36.2 (6.34)
Females: 9-13	1.5 (0.32)	2.7 (0.45)	6.6 (0.73)	14.8 (1.32)	30.0 (3.15)	52.0 (6.75)	71.7 (10.99)
Females: 14-18	4.0 (1.35)	7.6 (1.93)	19.2 (2.91)	43.5 (3.66)	84.7 (5.43)	142.3 (12.10)	191.0 (20.32)
Females: 19-30	3.0 (1.00)	8.8 (2.10)	32.0 (4.71)	80.0 (7.34)	155.9 (11.68)	253.4 (19.88)	325.7 (28.20)
Females: 31-50	7.7 (1.56)	18.5 (2.58)	54.3 (4.40)	126.1 (6.00)	240.3 (8.86)	388.1 (15.89)	499.9 (22.88)
Females: 19-50	4.9 (1.20)	13.3 (2.21)	43.7 (3.91)	107.7 (5.55)	209.3 (7.93)	343.5 (12.61)	444.7 (18.12)
Females: 51-70	8.4 (1.53)	21.6 (2.54)	60.2 (3.86)	133.1 (5.11)	246.7 (10.92)	393.0 (23.69)	503.0 (35.80)
Females: 71 and over	4.4 (0.83)	11.7 (1.58)	37.4 (3.46)	90.3 (6.03)	176.4 (9.74)	287.8 (15.97)	372.5 (21.50)
Females: 50 and over	6.9 (1.15)	18.0 (1.90)	52.5 (3.09)	120.1 (4.08)	228.3 (7.06)	366.3 (15.70)	470.9 (24.93)
Females: 19 and over	5.4 (0.87)	14.8 (1.57)	47.3 (2.68)	112.4 (3.87)	217.7 (5.95)	352.5 (10.05)	455.6 (14.07)
All individuals 1 and over	1.1 (0.08)	4.4 (0.30)	26.1 (1.19)	87.9 (2.80)	197.5 (5.08)	347.2 (8.28)	465.1 (11.37)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

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Sodium (mg/1000 kcal/day)

Sodium (mg/1000 kcal/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	1077 (46.2)	1145 (40.2)	1265 (31.2)	1402 (23.5)	1546 (26.7)	1684 (40.6)	1770 (50.9)
Males: 4-8	1229 (41.5)	1292 (36.4)	1401 (28.9)	1528 (23.7)	1663 (28.7)	1792 (41.4)	1870 (52.2)
Males: 9-13	1328 (56.7)	1392 (48.4)	1499 (35.8)	1627 (26.1)	1766 (34.5)	1902 (54.0)	1992 (68.8)
Males: 14-18	1286 (36.4)	1364 (31.8)	1499 (26.3)	1655 (26.5)	1819 (39.3)	1968 (58.1)	2064 (71.0)
Males: 19-30	1351 (46.3)	1415 (37.6)	1529 (23.5)	1659 (17.4)	1799 (34.5)	1936 (59.0)	2020 (75.8)
Males: 31-50	1288 (20.5)	1364 (18.3)	1501 (15.4)	1670 (17.8)	1858 (25.5)	2043 (37.8)	2166 (47.4)
Males: 19-50	1312 (21.2)	1383 (17.5)	1511 (12.2)	1667 (12.2)	1837 (21.0)	2004 (33.5)	2113 (41.7)
Males: 51-70	1306 (27.1)	1387 (24.1)	1536 (20.3)	1718 (23.4)	1924 (35.7)	2132 (53.7)	2268 (67.8)
Males: 71 and over	1327 (41.2)	1406 (35.1)	1542 (26.5)	1710 (26.0)	1893 (41.4)	2078 (63.4)	2199 (80.4)
Males: 50 and over	1306 (21.1)	1388 (18.2)	1536 (15.1)	1716 (18.3)	1918 (30.3)	2122 (45.7)	2254 (57.6)
Males: 19 and over	1308 (15.0)	1384 (12.6)	1519 (8.8)	1685 (9.6)	1868 (17.9)	2051 (28.9)	2168 (36.8)
Females: 1-3	1104 (46.7)	1180 (37.7)	1307 (25.8)	1459 (16.9)	1623 (25.4)	1782 (43.7)	1888 (59.5)
Females: 4-8	1176 (32.2)	1243 (29.2)	1364 (23.6)	1508 (18.1)	1664 (19.2)	1823 (28.3)	1920 (36.0)
Females: 9-13	1306 (62.8)	1363 (53.8)	1468 (37.8)	1591 (24.4)	1731 (34.9)	1865 (60.8)	1950 (80.5)
Females: 14-18	1346 (53.1)	1408 (44.8)	1513 (33.0)	1639 (28.9)	1776 (45.3)	1906 (70.8)	1986 (88.2)
Females: 19-30	1279 (45.3)	1360 (38.5)	1497 (29.2)	1664 (26.5)	1844 (39.4)	2026 (62.0)	2140 (77.4)
Females: 31-50	1337 (34.8)	1407 (29.5)	1529 (21.3)	1677 (15.5)	1837 (21.5)	1994 (33.9)	2095 (44.9)
Females: 19-50	1309 (27.5)	1383 (23.9)	1514 (18.3)	1671 (13.7)	1843 (16.8)	2011 (26.3)	2122 (33.9)
Females: 51-70	1291 (34.2)	1372 (29.7)	1520 (22.6)	1703 (19.1)	1906 (25.5)	2114 (40.0)	2254 (52.6)
Females: 71 and over	1334 (32.0)	1410 (27.5)	1544 (22.0)	1704 (18.5)	1882 (24.3)	2058 (36.6)	2170 (46.5)
Females: 50 and over	1304 (25.9)	1383 (22.5)	1526 (16.8)	1701 (13.8)	1900 (19.6)	2099 (32.0)	2231 (41.3)
Females: 19 and over	1305 (18.2)	1382 (16.2)	1519 (12.5)	1684 (9.7)	1868 (11.3)	2051 (17.0)	2169 (21.9)
All individuals 1 and over	1274 (9.0)	1352 (8.1)	1489 (6.7)	1654 (6.8)	1835 (9.7)	2012 (14.2)	2125 (17.9)

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Discretionary salt use at the table not included. Post-processing salt adjustment omitted for 2007-2008.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data.
Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Cholesterol (mg/1000 kcal/day)

Cholesterol (mg/1000 kcal/day): Percentiles and standard errors of usual intake from food and beverages by Dietary Reference Intake age-gender groups in the United States, 2007-2010

Dietary Reference Intake Group	Percentile of Usual Intake (SE): 5th	Percentile of Usual Intake (SE): 10th	Percentile of Usual Intake (SE): 25th	Percentile of Usual Intake (SE): 50th	Percentile of Usual Intake (SE): 75th	Percentile of Usual Intake (SE): 90th	Percentile of Usual Intake (SE): 95th
Males: 1-3	60 (5.3)	69 (5.1)	88 (4.3)	113 (3.8)	144 (8.0)	177 (17.3)	200 (24.9)
Males: 4-8	70 (4.7)	76 (4.5)	89 (4.0)	106 (3.8)	125 (5.0)	146 (7.7)	160 (9.9)
Males: 9-13	61 (5.7)	70 (5.1)	86 (3.9)	108 (4.1)	135 (8.2)	165 (14.7)	186 (19.8)
Males: 14-18	88 (17.3)	94 (14.2)	104 (8.5)	117 (3.8)	131 (9.9)	144 (19.0)	153 (25.1)
Males: 19-30	78 (4.8)	87 (4.3)	104 (3.4)	126 (3.3)	152 (5.7)	180 (9.7)	199 (12.9)
Males: 31-50	84 (5.1)	93 (4.7)	112 (3.9)	136 (3.0)	165 (4.2)	196 (7.5)	216 (10.5)
Males: 19-50	82 (3.8)	91 (3.5)	109 (2.8)	132 (2.3)	159 (3.2)	189 (5.7)	209 (7.8)
Males: 51-70	74 (4.1)	86 (4.0)	108 (3.7)	138 (3.3)	175 (3.9)	214 (6.1)	241 (7.9)
Males: 71 and over	67 (7.5)	79 (7.2)	105 (6.4)	142 (5.3)	191 (8.4)	249 (16.7)	292 (23.8)
Males: 50 and over	72 (3.6)	84 (3.3)	107 (3.0)	139 (2.5)	178 (3.1)	221 (5.3)	251 (7.2)
Males: 19 and over	77 (2.0)	88 (1.8)	108 (1.5)	134 (1.6)	167 (2.7)	202 (4.6)	225 (6.1)
Females: 1-3	67 (6.0)	76 (5.5)	94 (4.3)	118 (3.4)	150 (4.9)	184 (8.6)	209 (12.0)
Females: 4-8	93 (15.0)	96 (12.5)	101 (8.1)	107 (3.5)	114 (5.6)	121 (11.6)	125 (15.7)
Females: 9-13	61 (4.3)	69 (4.0)	86 (3.2)	108 (3.6)	136 (6.9)	167 (12.1)	188 (16.8)
Females: 14-18	74 (8.0)	80 (6.9)	93 (4.8)	110 (3.3)	128 (5.4)	147 (9.4)	159 (12.4)
Females: 19-30	54 (13.5)	64 (12.6)	84 (9.6)	113 (5.0)	150 (9.3)	192 (23.2)	222 (34.6)
Females: 31-50	77 (6.3)	86 (5.6)	103 (4.1)	126 (2.6)	153 (4.7)	182 (9.4)	201 (13.2)
Females: 19-50	66 (8.1)	76 (7.4)	95 (5.6)	121 (3.2)	154 (5.8)	189 (12.6)	213 (18.2)
Females: 51-70	70 (4.2)	80 (4.0)	100 (3.8)	128 (4.2)	162 (6.2)	199 (9.8)	225 (12.9)
Females: 71 and over	77 (5.4)	86 (4.9)	103 (3.6)	125 (2.6)	151 (4.6)	178 (8.7)	196 (11.8)
Females: 50 and over	71 (3.4)	81 (3.2)	101 (3.0)	127 (3.2)	158 (4.7)	193 (7.4)	217 (9.8)
Females: 19 and over	68 (5.1)	78 (4.7)	97 (3.7)	123 (2.6)	155 (4.2)	190 (8.4)	214 (11.9)
All individuals 1 and over	70 (2.6)	80 (2.3)	99 (1.8)	124 (1.4)	155 (2.4)	189 (4.5)	212 (6.2)

NOTES: Usual intake distribution estimated using the National Cancer Institute Method.

DATA SOURCE: What We Eat in America, NHANES 2007-2010, individuals 1 year and over (excluding breast-fed children and pregnant or lactating females), dietary intake data. Prepared by the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture. 7/2013

Attachment 12

Dietary Reference Intakes (DRIs): Recommended Dietary Allowances and Adequate Intakes, Vitamins

Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Vitamin A (µg/d)[a]	Vitamin C (mg/d)	Vitamin D (µg/d)[b,c]	Vitamin E (mg/d)[d]	Vitamin K (µg/d)	Thiamin (mg/d)	Riboflavin (mg/d)	Niacin (mg/d)[e]	Vitamin B_6 (mg/d)	Folate (µg/d)[f]	Vitamin B_{12} (µg/d)	Pantothenic Acid (mg/d)	Biotin (µg/d)	Choline (mg/d)[g]
Infants														
0 to 6 mo	400*	40*	10	4*	2.0*	0.2*	0.3*	2*	0.1*	65*	0.4*	1.7*	5*	125*
6 to 12 mo	500*	50*	10	5*	2.5*	0.3*	0.4*	4*	0.3*	80*	0.5*	1.8*	6*	150*
Children														
1–3 y	**300**	**15**	**15**	**6**	30*	**0.5**	**0.5**	**6**	**0.5**	**150**	**0.9**	2*	8*	200*
4–8 y	**400**	**25**	**15**	**7**	55*	**0.6**	**0.6**	**8**	**0.6**	**200**	**1.2**	3*	12*	250*
Males														
9–13 y	**600**	**45**	**15**	**11**	60*	**0.9**	**0.9**	**12**	**1.0**	**300**	**1.8**	4*	20*	375*
14–18 y	**900**	**75**	**15**	**15**	75*	**1.2**	**1.3**	**16**	**1.3**	**400**	**2.4**	5*	25*	550*
19–30 y	**900**	**90**	**15**	**15**	120*	**1.2**	**1.3**	**16**	**1.3**	**400**	**2.4**	5*	30*	550*
31–50 y	**900**	**90**	**15**	**15**	120*	**1.2**	**1.3**	**16**	**1.3**	**400**	**2.4**	5*	30*	550*
51–70 y	**900**	**90**	**15**	**15**	120*	**1.2**	**1.3**	**16**	**1.7**	**400**	**2.4**[h]	5*	30*	550*
> 70 y	**900**	**90**	**20**	**15**	120*	**1.2**	**1.3**	**16**	**1.7**	**400**	**2.4**[h]	5*	30*	550*
Females														
9–13 y	**600**	**45**	**15**	**11**	60*	**0.9**	**0.9**	**12**	**1.0**	**300**	**1.8**	4*	20*	375*
14–18 y	**700**	**65**	**15**	**15**	75*	**1.0**	**1.0**	**14**	**1.2**	**400**[i]	**2.4**	5*	25*	400*
19–30 y	**700**	**75**	**15**	**15**	90*	**1.1**	**1.1**	**14**	**1.3**	**400**[i]	**2.4**	5*	30*	425*
31–50 y	**700**	**75**	**15**	**15**	90*	**1.1**	**1.1**	**14**	**1.3**	**400**[i]	**2.4**	5*	30*	425*
51–70 y	**700**	**75**	**15**	**15**	90*	**1.1**	**1.1**	**14**	**1.5**	**400**	**2.4**[h]	5*	30*	425*
> 70 y	**700**	**75**	**20**	**15**	90*	**1.1**	**1.1**	**14**	**1.5**	**400**	**2.4**[h]	5*	30*	425*
Pregnancy														
14–18 y	**750**	**80**	**15**	**15**	75*	**1.4**	**1.4**	**18**	**1.9**	**600**[j]	**2.6**	6*	30*	450*
19–30 y	**770**	**85**	**15**	**15**	90*	**1.4**	**1.4**	**18**	**1.9**	**600**[j]	**2.6**	6*	30*	450*
31–50 y	**770**	**85**	**15**	**15**	90*	**1.4**	**1.4**	**18**	**1.9**	**600**[j]	**2.6**	6*	30*	450*
Lactation														
14–18 y	**1,200**	**115**	**15**	**19**	75*	**1.4**	**1.6**	**17**	**2.0**	**500**	**2.8**	7*	35*	550*
19–30 y	**1,300**	**120**	**15**	**19**	90*	**1.4**	**1.6**	**17**	**2.0**	**500**	**2.8**	7*	35*	550*
31–50 y	**1,300**	**120**	**15**	**19**	90*	**1.4**	**1.6**	**17**	**2.0**	**500**	**2.8**	7*	35*	550*

NOTE: This table (taken from the DRI reports, see www.nap.edu) presents Recommended Dietary Allowances (RDAs) in **bold type** and Adequate Intakes (AIs) in ordinary type followed by an asterisk (*). An RDA is the average daily dietary intake level; sufficient to meet the nutrient requirements of nearly all (97-98 percent) healthy individuals in a group. It is calculated from an Estimated Average Requirement (EAR). If sufficient scientific evidence is not available to establish an EAR, and thus calculate an RDA, an AI is usually developed. For healthy breastfed infants, an AI is the mean intake. The AI for other life stage and gender groups is believed to cover the needs of all healthy individuals in the groups, but lack of data or uncertainty in the data prevent being able to specify with confidence the percentage of individuals covered by this intake.

[a] As retinol activity equivalents (RAEs). 1 RAE = 1 µg retinol, 12 µg β-carotene, 24 µg α-carotene, or 24 µg β-cryptoxanthin. The RAE for dietary provitamin A carotenoids is two-fold greater than retinol equivalents (RE), whereas the RAE for preformed vitamin A is the same as RE.

[b] As cholecalciferol. 1 µg cholecalciferol = 40 IU vitamin D.

[c] Under the assumption of minimal sunlight.

[d] As α-tocopherol. α-Tocopherol includes *RRR*-α-tocopherol, the only form of α-tocopherol that occurs naturally in foods, and the *2R*-stereoisomeric forms of α-tocopherol (*RRR*-, *RSR*-, *RRS*-, and *RSS*-α-tocopherol) that occur in fortified foods and supplements. It does not include the *2S*-stereoisomeric forms of α-tocopherol (*SRR*-, *SSR*-, *SRS*-, and *SSS*-α-tocopherol), also found in fortified foods and supplements.

[e] As niacin equivalents (NE). 1 mg of niacin = 60 mg of tryptophan; 0–6 months = preformed niacin (not NE).

[f] As dietary folate equivalents (DFE). 1 DFE = 1 µg food folate = 0.6 µg of folic acid from fortified food or as a supplement consumed with food = 0.5 µg of a supplement taken on an empty stomach.

[g] Although AIs have been set for choline, there are few data to assess whether a dietary supply of choline is needed at all stages of the life cycle, and it may be that the choline requirement can be met by endogenous synthesis at some of these stages.

[h] Because 10 to 30 percent of older people may malabsorb food-bound B_{12}, it is advisable for those older than 50 years to meet their RDA mainly by consuming foods fortified with B_{12} or a supplement containing B_{12}.

[i] In view of evidence linking folate intake with neural tube defects in the fetus, it is recommended that all women capable of becoming pregnant consume 400 µg from supplements or fortified foods in addition to intake of food folate from a varied diet.

[j] It is assumed that women will continue consuming 400 µg from supplements or fortified food until their pregnancy is confirmed and they enter prenatal care, which ordinarily occurs after the end of the periconceptional period—the critical time for formation of the neural tube.

SOURCES: *Dietary Reference Intakes for Calcium, Phosphorous, Magnesium, Vitamin D, and Fluoride* (1997); *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B_6, Folate, Vitamin B_{12}, Pantothenic Acid, Biotin, and Choline* (1998); *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids* (2000); *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc* (2001); *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and* Sulfate (2005); and *Dietary Reference Intakes for Calcium and Vitamin D* (2011). These reports may be accessed via www.nap.edu.

Dietary Reference Intakes (DRIs): Recommended Dietary Allowances and Adequate Intakes, Elements

Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Calcium (mg/d)	Chromium (µg/d)	Copper (µg/d)	Fluoride (mg/d)	Iodine (µg/d)	Iron (mg/d)	Magnesium (mg/d)	Manganese (mg/d)	Molybdenum (µg/d)	Phosphorus (mg/d)	Selenium (µg/d)	Zinc (mg/d)	Potass-ium (g/d)	Sodium (g/d)	Chloride (g/d)
Infants															
0 to 6 mo	200*	0.2*	200*	0.01*	110*	0.27*	30*	0.003*	2*	100*	15*	2*	0.4*	0.12*	0.18*
6 to 12 mo	260*	5.5*	220*	0.5*	130*	**11**	75*	0.6*	3*	275*	20*	**3**	0.7*	0.37*	0.57*
Children															
1–3 y	**700**	11*	**340**	0.7*	**90**	**7**	**80**	1.2*	**17**	**460**	**20**	**3**	3.0*	1.0*	1.5*
4–8 y	**1,000**	15*	**440**	1*	**90**	**10**	**130**	1.5*	**22**	**500**	**30**	**5**	3.8*	1.2*	1.9*
Males															
9–13 y	**1,300**	25*	**700**	2*	**120**	**8**	**240**	1.9*	**34**	**1,250**	**40**	**8**	4.5*	1.5*	2.3*
14–18 y	**1,300**	35*	**890**	3*	**150**	**11**	**410**	2.2*	**43**	**1,250**	**55**	**11**	4.7*	1.5*	2.3*
19–30 y	**1,000**	35*	**900**	4*	**150**	**8**	**400**	2.3*	**45**	**700**	**55**	**11**	4.7*	1.5*	2.3*
31–50 y	**1,000**	35*	**900**	4*	**150**	**8**	**420**	2.3*	**45**	**700**	**55**	**11**	4.7*	1.5*	2.3*
51–70 y	**1,000**	30*	**900**	4*	**150**	**8**	**420**	2.3*	**45**	**700**	**55**	**11**	4.7*	1.3*	2.0*
> 70 y	**1,200**	30*	**900**	4*	**150**	**8**	**420**	2.3*	**45**	**700**	**55**	**11**	4.7*	1.2*	1.8*
Females															
9–13 y	**1,300**	21*	**700**	2*	**120**	**8**	**240**	1.6*	**34**	**1,250**	**40**	**8**	4.5*	1.5*	2.3*
14–18 y	**1,300**	24*	**890**	3*	**150**	**15**	**360**	1.6*	**43**	**1,250**	**55**	**9**	4.7*	1.5*	2.3*
19–30 y	**1,000**	25*	**900**	3*	**150**	**18**	**310**	1.8*	**45**	**700**	**55**	**8**	4.7*	1.5*	2.3*
31–50 y	**1,000**	25*	**900**	3*	**150**	**18**	**320**	1.8*	**45**	**700**	**55**	**8**	4.7*	1.5*	2.3*
51–70 y	**1,200**	20*	**900**	3*	**150**	**8**	**320**	1.8*	**45**	**700**	**55**	**8**	4.7*	1.3*	2.0*
> 70 y	**1,200**	20*	**900**	3*	**150**	**8**	**320**	1.8*	**45**	**700**	**55**	**8**	4.7*	1.2*	1.8*
Pregnancy															
14–18 y	**1,300**	29*	**1,000**	3*	**220**	**27**	**400**	2.0*	**50**	**1,250**	**60**	**12**	4.7*	1.5*	2.3*
19–30 y	**1,000**	30*	**1,000**	3*	**220**	**27**	**350**	2.0*	**50**	**700**	**60**	**11**	4.7*	1.5*	2.3*
31–50 y	**1,000**	30*	**1,000**	3*	**220**	**27**	**360**	2.0*	**50**	**700**	**60**	**11**	4.7*	1.5*	2.3*
Lactation															
14–18 y	**1,300**	44*	**1,300**	3*	**290**	**10**	**360**	2.6*	**50**	**1,250**	**70**	**13**	5.1*	1.5*	2.3*
19–30 y	**1,000**	45*	**1,300**	3*	**290**	**9**	**310**	2.6*	**50**	**700**	**70**	**12**	5.1*	1.5*	2.3*
31–50 y	**1,000**	45*	**1,300**	3*	**290**	**9**	**320**	2.6*	**50**	**700**	**70**	**12**	5.1*	1.5*	2.3*

NOTE: This table (taken from the DRI reports, see www.nap.edu) presents Recommended Dietary Allowances (RDAs) in **bold type** and Adequate Intakes (AIs) in ordinary type followed by an asterisk (*). An RDA is the average daily dietary intake level; sufficient to meet the nutrient requirements of nearly all (97-98 percent) healthy individuals in a group. It is calculated from an Estimated Average Requirement (EAR). If sufficient scientific evidence is not available to establish an EAR, and thus calculate an RDA, an AI is usually developed. For healthy breastfed infants, an AI is the mean intake. The AI for other life stage and gender groups is believed to cover the needs of all healthy individuals in the groups, but lack of data or uncertainty in the data prevent being able to specify with confidence the percentage of individuals covered by this intake.

SOURCES: *Dietary Reference Intakes for Calcium, Phosphorous, Magnesium, Vitamin D, and Fluoride* (1997); *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B_6, Folate, Vitamin B_{12}, Pantothenic Acid, Biotin, and Choline* (1998); *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids* (2000); and *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc* (2001); *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and* Sulfate (2005); and *Dietary Reference Intakes for Calcium and Vitamin D* (2011). These reports may be accessed via www.nap.edu.

Viebrock, Lauren

From: Tao, Xin <xin.tao@hoganlovells.com>
Sent: Tuesday, June 20, 2017 11:21 AM
To: Viebrock, Lauren
Cc: Hahn, Martin J.
Subject: RE: GRN 690 Request to cease to evaluate
Attachments: Request to Withdraw GRN No. 690.pdf

Lauren,

Thank you for the reminder. We are attaching our request letter to withdraw GRN No. 690. If you have any questions regarding the information contained in this letter, please contact us.

Best regards,
Xin

Xin Tao
Senior Associate

Hogan Lovells US LLP
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555 Thirteenth Street, NW
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From: Viebrock, Lauren [mailto:Lauren.Viebrock@fda.hhs.gov]
Sent: Monday, June 19, 2017 4:17 PM
To: Hahn, Martin J.
Cc: Tao, Xin
Subject: RE: GRN 690 Request to cease to evaluate

Hi Martin,

We have not yet received the letter requesting we cease to evaluate the notice No. GRN 690. We request a response and letter within **10 business days**. Please note that if the request is not received within that timeframe, we may have to issue a no basis letter.

If you have questions, please feel free to contact me. Thank you in advance for your attention to this matter.

Sincerely,

Lauren VieBrock

From: Hahn, Martin J. [mailto:martin.hahn@hoganlovells.com]
Sent: Thursday, June 01, 2017 1:03 PM
To: Viebrock, Lauren
Cc: Tao, Xin
Subject: RE: GRN 690 Request to cease to evaluate

Lauren:

Many apologies for the delay in sending the letter. We will get a letter to the agency next week that contains our official request to have the agency cease evaluating the notification.

Martin Hahn
Partner

Hogan Lovells US LLP
Columbia Square
555 Thirteenth Street, NW
Washington, DC 20004

Tel: +1 202 637 5600
Direct: +1 202 637 5926
Fax: +1 202 637 5910
Email: martin.hahn@hoganlovells.com
www.hoganlovells.com

From: Viebrock, Lauren [mailto:Lauren.Viebrock@fda.hhs.gov]
Sent: Wednesday, May 31, 2017 10:47 AM
To: Hahn, Martin J.
Subject: GRN 690 Request to cease to evaluate

Hi Martin,

I am following up on our phone call from Monday, May 8, 2017, regarding GRN 690, which you submitted on behalf of NutriFusion for their vitamin extract blend. Per our conversation, you were going to submit a letter to us requesting that we cease our evaluation of GRN 690. I wanted to check in with you as to when we may anticipate receiving your request. Thank you.

Regards,
Lauren

Lauren VieBrock, Ph.D.

Consumer Safety Officer/Microbiology Reviewer
U.S. Food and Drug Administration
Center for Food Safety and Applied Nutrition
Office of Food Additive Safety
Division of Biotechnology and GRAS Notice Review
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Privileged and Confidential

June 20, 2017

Via Electronic Mail

Lauren Viebrock, Ph.D.
Consumer Safety Officer/Microbiology Reviewer
Office of Food Additive Safety
Division of Biotechnology and GRAS Notice Review
Center for Food Safety and Applied Nutrition
U.S. Food and Drug Administration
E-mail: Lauren.Viebrock@fda.hhs.gov

RE: Request to Withdraw GRN No. 690

Dear Dr. Viebrock,

We are writing on behalf of our client, NutriFusion LLC (NutriFusion or the Company), to request the Food and Drug Administration (FDA) cease its review of GRN No. 690. We understand from our telephone conference call on May 8, 2017 that FDA cannot review a GRAS notice for a combination of ingredients. FDA has asked that we submit separate GRAS notices for each of the specific vitamins that could be extracted from edible fruits and vegetables. We agreed to withdraw the GRAS notice and to submit separate GRAS notices in the future.

NutriFusion submitted the GRN No. 690 to FDA through the voluntary GRAS notice program following a pre-submission meeting on April 26, 2016. During the meeting, the agency encouraged NutriFusion to submit a single GRAS notice for the vitamin blends extracted from fruits and vegetables. FDA also offered many helpful recommendations on how to prepare the GRAS notice. We understand that when FDA received the GRAS notice, it ran into difficulty completing its review given the variability in the composition of the vitamin blends. We also understand FDA has since determined that GRAS notifications should be limited to single ingredients rather than blends.

NutriFusion is currently in the process of preparing separate GRAS notifications and intends to submit them in the future. For each vitamin, FDA has asked that we provide specifications for the vitamin that better characterize the vitamin that is extracted. NutriFusion is in the process of collecting the data and information that would support separate GRAS notifications for the specific vitamins that are extracted. We will be submitting new GRAS notifications when NutriFusion assembles the data and information that has been requested.

We are withdrawing the notice at the agency's request to submit separate notices for each vitamin that is extracted. Our withdrawal, therefore, should not be viewed as an indication of the GRAS status of the notified ingredients. NutriFusion continues to believe the current safety data and information presented in GRN No. 690 establish the GRAS status for the intended use of the notified

substance as an alternative source of synthetic vitamins in foods at levels not to exceed 100% daily value.

If you have any questions regarding the information contained in this response, please contact us.

Sincerely,

Martin J. Hahn

Partner
Hogan Lovells US LLP
martin.hahn@hoganlovells.com
D 202/637-5926