TABLE D1-1. Nutritional Goals for USDA Daily Food Intake Patterns — Page 1, Goals for Vitamins[1]

This table shows the nutritional goals for each proposed food intake pattern. The patterns are listed in the leftmost column, identified by calorie level. The target age/gender group(s) for each pattern are shown and the goals for each nutrient for that group are then listed. The source of the goal for each nutrient is shown at the top of the column. See the Notes page for additional information.

	Nutrient Source of Goal	VITAMIN A RDA[3]	VITAMIN E RDA[3]	VITAMIN C RDA[3]	THIAMIN RDA[3]	RIBOFLAVIN RDA[3]	NIACIN RDA[3]	VITAMIN B_6 RDA[3]	FOLATE RDA[3]	VITAMIN B_{12} RDA[3]
Food Pattern (calories)	**Target age/ gender group(s) for pattern[2]**	**(µg RAE)**	**(mg AT)**	**(mg)**	**(mg)**	**(mg)**	**(mg)**	**(mg)**	**(µg)**	**(µg)**
1000	child 1-3	300	6	15	0.5	0.5	6	0.5	150	0.9
1200	female 4-8	400	7	25	0.6	0.6	8	0.6	200	1.2
1400	male 4-8	400	7	25	0.6	0.6	8	0.6	200	1.2
1600	female 9-13	600	11	45	0.9	0.9	12	1.0	300	1.8
	female 51-70, 70+	700	15	75	1.1	1.1	14	1.5	400	2.4
1800	male 9-13	600	11	45	0.9	0.9	12	1.0	300	1.8
	female 14-18	700	15	65	1.0	1.0	14	1.2	400	2.4
	female 31-50	700	15	75	1.1	1.1	14	1.3	400	2.4
2000	male 51-70, 70+	900	15	90	1.2	1.3	16	1.7	400	2.4
	female 19-30	700	15	75	1.1	1.1	14	1.3	400	2.4
2200	male 14-18	900	15	75	1.2	1.3	16	1.3	400	2.4
	male 31-50	900	15	90	1.2	1.3	16	1.3	400	2.4
2400	male 19-30	900	15	90	1.2	1.3	16	1.3	400	2.4
2600[7]	male 19-30	900	15	90	1.2	1.3	16	1.3	400	2.4
2800[7]	male 14-18	900	15	75	1.2	1.3	16	1.3	400	2.4
3000[7]	male 19-30	900	15	90	1.2	1.3	16	1.3	400	2.4
3200[7]	male 14-18	900	15	75	1.2	1.3	16	1.3	400	2.4

TABLE D1-1 (cont'd.): Nutritional Goals for USDA Daily Food Intake Patterns — Page 2, Goals for Minerals[1]

This table shows the nutritional goals for each proposed food intake pattern. The patterns are listed in the leftmost column, identified by calorie level. The target age/gender group(s) for each pattern are shown and the goals for each nutrient for that group are then listed. The source of the goal for each nutrient is shown at the top of the column. See the Notes page for additional information.

	Nutrient Source of Goal	CALCIUM AI[3]	PHOSPHORUS RDA[3]	MAGNESIUM RDA[3]	IRON RDA[3]	ZINC RDA[3]	COPPER RDA[3]	SODIUM UL (2004)[3,4]	POTASSIUM AI (2004)[3,4]
Food Pattern (calories)	Target age/ gender group(s) for pattern[2]	(mg)	(mg)	(mg)	(mg)	(mg)	(µg)	(mg)	(mg)
1000	child 1-3	500	460	80	7	3	340	<1500	3000
1200	female 4-8	800	500	130	10	5	440	<1900	3800
1400	male 4-8	800	500	130	10	5	440	<1900	3800
1600	female 9-13	1300	1250	240	8	8	700	<2200	4500
	female 51-70, 70+	1200	700	320	8	8	900	<2300	4700
1800	male 9-13	1300	1250	240	8	8	700	<2200	4500
	female 14-18	1300	1250	360	15	9	890	<2300	4700
	female 31-50	1000	700	320	18	8	900	<2300	4700
2000	male 51-70, 70+	1200	700	420	8	11	900	<2300	4700
	female 19-30	1000	700	310	18	8	900	<2300	4700
2200	male 14-18	1300	1250	410	11	11	890	<2300	4700
	male 31-50	1000	700	420	8	11	900	<2300	4700
2400	male 19-30	1000	700	400	8	11	900	<2300	4700
2600[7]	male 19-30	1000	700	400	8	11	900	<2300	4700
2800[7]	male 14-18	1300	1250	410	11	11	890	<2300	4700
3000[7]	male 19-30	1000	700	400	8	11	900	<2300	4700
3200[7]	male 14-18	1300	1250	410	11	11	890	<2300	4700

TABLE D1-1 (cont'd.): Nutritional Goals for USDA Daily Food Intake Patterns — Page 3, Goals for Macronutrients[1]

This table shows the nutritional goals for each proposed food intake pattern. The patterns are listed in the leftmost column, identified by calorie level. The target age/gender group(s) for each pattern are shown and the goals for each nutrient for that group are then listed. The source of the goal for each nutrient is shown at the top of the column. See the Notes page for additional information.

	Nutrient	PROTEIN		CARBOHYDRATE		ADDED SUGARS	TOTAL FIBER	TOTAL FAT	SATURATED FAT	CHOLESTEROL	LINOLEIC ACID		α-LINOLENIC ACID	
	Source of Goal	RDA[3]	AMDR[3]	RDA[3]	AMDR[3]	See Note 5	See Note 6	AMDR[3]	DG[3]	DV[3]	AI[3]	AMDR[3]	AI[3]	AMDR[3]
Food Pattern (calories)	Target age/ gender group(s) for pattern[2]	(g)	(%)	(g)	(%)	(%)	(g)	(%)	(%)	(mg)	(g)	(%)	(g)	(%)
1000	child 1-3	13	5-20	130	45-65	<25%	14	30-40	<10%	<300	7	5-10	0.7	0.6-1.2
1200	female 4-8	19	10-30	130	45-65	<25%	17	25-35	<10%	<300	10	5-10	0.9	0.6-1.2
1400	male 4-8	19	10-30	130	45-65	<25%	20	25-35	<10%	<300	10	5-10	0.9	0.6-1.2
1600	female 9-13	34	10-30	130	45-65	<25%	22	25-35	<10%	<300	10	5-10	1.0	0.6-1.2
	female 51-70, 70+	46	10-35	130	45-65	<25%	22	20-35	<10%	<300	11	5-10	1.1	0.6-1.2
1800	male 9-13	34	10-30	130	45-65	<25%	25	25-35	<10%	<300	12	5-10	1.2	0.6-1.2
	female 14-18	46	10-30	130	45-65	<25%	25	25-35	<10%	<300	11	5-10	1.1	0.6-1.2
	female 31-50	46	10-35	130	45-65	<25%	25	20-35	<10%	<300	12	5-10	1.1	0.6-1.2
2000	male 51-70, 70+	56	10-35	130	45-65	<25%	28	20-35	<10%	<300	14	5-10	1.6	0.6-1.2
	female 19-30	46	10-35	130	45-65	<25%	28	20-35	<10%	<300	12	5-10	1.1	0.6-1.2
2200	male 14-18	52	10-30	130	45-65	<25%	31	25-35	<10%	<300	16	5-10	1.6	0.6-1.2
	male 31-50	56	10-35	130	45-65	<25%	31	20-35	<10%	<300	17	5-10	1.6	0.6-1.2
2400	male 19-30	56	10-35	130	45-65	<25%	34	20-35	<10%	<300	17	5-10	1.6	0.6-1.2
2600[7]	male 19-30	56	10-35	130	45-65	<25%	36	20-35	<10%	<300	17	5-10	1.6	0.6-1.2
2800[7]	male 14-18	52	10-30	130	45-65	<25%	39	25-35	<10%	<300	16	5-10	1.6	0.6-1.2
3000[7]	male 19-30	56	10-35	130	45-65	<25%	42	20-35	<10%	<300	17	5-10	1.6	0.6-1.2
3200[7]	male 14-18	52	10-30	130	45-65	<25%	45	25-35	<10%	<300	16	5-10	1.6	0.6-1.2

Notes for Table D1-1:

1. Nutritional goals are from Institute of Medicine (IOM) Dietary Reference Intakes reports, 1997-2004 (RDA, AI, AMDR, UL); from Food and Drug Administration Daily Values for Nutrition Facts Labels (DV); and from the Dietary Guidelines for Americans, 2000 (DG).

2. Target groups are based on estimated energy requirements of sedentary individuals of reference height and weight from IOM Dietary Reference Intakes macronutrients report, 2002.

3. Nutritional goals based on Recommended Dietary Allowances (RDA); Adequate Intakes (AI); Daily Values (DV); Upper Limits (UL); Acceptable Macronutrient Distribution Ranges (AMDR); or Dietary Guidelines (DG) recommendations. AMDR are shown as a percentage of total calories.

4. Standards for sodium and potassium have been updated since the original release of this table, and now are based on the Dietary Reference Intakes report for fluids and electrolytes, issued in February 2004. The standard used for sodium is a moderation goal, to be no more than the UL, and for potassium an adequacy goal, to be at least the AI.

5. Added sugars: The reference amount is based on the suggestion from the Dietary Reference Intakes macronutrients report. In determining Food Guide Pyramid daily food intake patterns, amounts of added sugars in each pattern are calculated based on the calories that remain available, up to the energy goal, after food group and fat calories are considered.

6. Estimated total fiber recommendation is based on 14 grams of total fiber per 1000 calories, the basis for the total fiber Adequate Intakes recommendation in the DRI macronutrients report. Additional explanation for this choice is found in the text of the Federal Register notice.

7. Food patterns at the 2600, 2800, 3000, and 3200 calorie levels are not target patterns for any age/gender group, but they are suggested patterns for more active men. Sample comparisons with the nutritional goals for males ages 14 to 18 and 19 to 30 are listed here.

Table D1-2. Probabilities of Adequacy for Selected Nutrients on the First 24-hour Recall among Adult CSFII 1994-96 Participants.
Nutrients considered "shortfall" nutrients in bold.

	Probability of adequacy (as a percentage)	
Nutrient	**Men**	**Women**
Vitamin A	**47.0%**	**48.1%**
Vitamin C	**49.3**	**52.3**
Vitamin E	**14.1**	**6.8**
Thiamin	83.9	72.2
Riboflavin	85.8	80.9
Niacin	90.5	80.4
Folate[1]	**33.9**	**20.9**
Vitamin B-6	78.3	60.7
Vitamin B-12	80.5	64.2
Phosphorus	94.3	85.1
Magnesium	**36.1**	**34.3**
Iron	95.5	79.4
Copper	87.4	73.3
Zinc	65.7	62.0
Calcium	**58.6**	**45.7**

[1]The probability of folate adequacy is underestimated because the folate intake values are expressed in milligrams of folate rather than dietary folate equivalents (DFEs), the unit used in Dietary Reference Intakes. DFEs account for the higher percent absorption of folate from foods fortified with folic acid, whereas milligrams of folate do not. Moreover, the food intake data from 1994-1996 do not reflect the current fortification of enriched grains with folic acid, required since 1998.

Source: Foote, et.al., 2004

Note: This table identifies the probability of *adequacy* for a nutrient, while table D1-4 identifies the probability of *inadequacy* for a nutrient.

Table D1-3. Mean Dietary Intakes of Potassium and Fiber in Comparison with the Adequate Intake (AI).

		AI	Mean Intake[1,2]
Potassium	Males		
	<6 yrs.	3000 mg (1-3 yrs.)	2073 mg
	6-11 yrs.	3800 mg (4-8 yrs.)	2255 mg
	12-19 yrs.	4500 mg (9-13yrs.)	2781 mg
		4700 mg (14-18yrs.)	
	20-39 yrs.	4700 mg	3114 mg
	40-59 yrs.	4700 mg	3332 mg
	60 yrs. and over	4700 mg	3059 mg
	Females		
	<6 yrs.	3000 mg (1-3 yrs.)	1861mg
	6-11 yrs.	3800 mg (4-8y)	2122 mg
	12-19 yrs.	4500 mg (9-13yrs.)	2162 mg
		4700 mg (14-18yrs.)	
	20-39 yrs.	4700 mg	2348 mg
	40-59 yrs.	4700 mg	2523 mg
	60 yrs. and over	4700 mg	2367 mg
Fiber	Males		
	1-8 yrs.	19 g (1-3 yrs.) 25 g (4-8 yrs.)	9.1 g (M/F<6 yrs.)
	9-18 yrs.	31 g (9-13 yrs.) 38 g (14-18 yrs.)	13.6 g (6-11 yrs.)
	19-50 yrs.	38 g	17.4 g (12-19 yrs.)
	51 yrs. and over	30 g	18.3 g (20-29 yrs.)
			19.4 g (30-39 yrs.)
			18.3 g (40-49 yrs.)
			18.5 g (50-59, 60-69 yrs.)
			17.7 g (70 and over)
	Females		
	1-8 yrs.	19 g (1-3 yrs.) 25 g (4-8 yrs.)	9.1 g (M/F <6 yrs.)
	9-18 yrs.	31 g (9-13 yrs.) 38 g (14-18 yrs.)	12.2 g (6-11 yrs.)
	19-50 yrs.	25 g	13.0 g (12-19 yrs.)
	51 yrs. and over	21 g	13.2 g (20-29 yrs.)
			13.6 g (30-39 yrs.)
			14.0 g (40-49 yrs.)
			14.5 g (50-59 yrs.)
			14.2 g (60-69, 70 and over)

Sources:
[1]For potassium: Ervin et al, 2004.
[2]For fiber: Agricultural Research Service, Results from USDA's 1994-96 Continuing Survey of Food Intakes by Individuals (CSFII) Table Set 10.
[3]Agricultural Research Service, analysis of CSFII 1994-1996,1998 data

Table D1-4. Percentage of School-aged Children Whose Usual Daily Nutrient Intake was Below the Estimated Average Requirement (EAR) for all Children and by Age and Gender, 1994-1996. (Nutrients considered "shortfall" nutrients in bold)

Nutrient	All	M 6-8	F 6-8	M 9-13	F 9-13	M 14-18	F 14-18
Vitamin A	10.1	0	0	3	6	15	24
Vitamin C	10.5	1	0	2	9	18	22
Vitamin E	**78.9**	**48**	**68**	**70**	**85**	**84**	**99**
Thiamin	1.9	0	0	9	0	2	10
Ribloflavin	2.1	0	0	0	0	3	5
Niacin	1.9	0	0	0	0	0	5
Vitamin B-6	1.3	0	0	0	2	3	15
Folate[1]	**50.6**	**13**	**14**	**36**	**59**	**58**	**90**
Vitamin B-12	1.3	0	0	0	1	0	8
Phosphorus	19.9	0	0	15	37	7	48
Magnesium	**36.5**	**1**	**0**	**16**	**33**	**62**	**89**
Iron	2.9	1	1	0	0	1	13
Zinc	8.2	0	0	1	11	3	24

[1]The percentage of children with folate intakes below the EAR is overestimated because the probability of folate adequacy is underestimated because the folate intake values are expressed in milligrams of folate rather than dietary folate equivalents (DFEs), the unit used in Dietary Reference Intakes. DFEs account for the higher percent absorption of folate from foods fortified with folic acid, whereas milligrams of folate do not. Moreover, the food intake data from 1994-1996 do not reflect the current fortification of enriched grains with folic acid, required since 1998.

Source: Suitor and Gleason, 2002

Note: This table identifies the probability of *inadequacy* for a nutrient, while table D1-2 identifies the probability of *adequacy* for a nutrient.

Table D1-5. Food Sources of Vitamin A.

Table D1-5a. Food sources of vitamin A ranked by mcg RAE of vitamin A per standard amount; also calories in the standard amount. (All are ≥20% of RDA for adult men, which is 900 mcg RAE.)

Food, Standard Amount	Vitamin A (mcg RAE)[1]	Calories[1]
Organ meats (liver, giblets), various, cooked, 3 ounces	1490-9126	134-276
Carrot juice, ¾ cup	1692	71
Sweet potato with peel, baked, 1 medium	1096	103
Pumpkin, canned, ½ cup	953	42
Carrots, cooked from fresh, ½ cup	671	27
Spinach, cooked from frozen, ½ cup	573	30
Collards, cooked from frozen, ½ cup	489	31
Kale, cooked from frozen, ½ cup	478	20
Mixed vegetables, canned, ½ cup	474	40
Turnip greens, cooked from frozen, ½ cup	441	24
Carrot, raw, 1 small	301	20
Instant cooked cereals, fortified, prepared, 1 packet	280-285	75-97
Beet greens, cooked, ½ cup	276	19
Winter squash, cooked, ½ cup	268	38
Dandelion greens, cooked, ½ cup	260	18
Various ready-to-eat cereals, ~1 ounce	123 to 230	100-117
Mustard greens, cooked, ½ cup	221	11
Pickled herring, 3 ounces	219	222
Green leaf lettuce, 1 cup	207	8
Red sweet pepper, cooked, ½ cup	187	19
Chinese cabbage, cooked, ½ cup	180	10

Table D1-5b. Food Sources of vitamin A as consumed by Americans[2] (Percent of total consumption, CSFII, 1994-1996)

Food	Percent of Total[3]
Carrots	26.9
Milk	9.0
Organ Meats	7.0
Ready-to-eat cereal	6.2
Cheese	5.0
Margarine	4.7
Tomatoes	4.2
Eggs	3.6
Spinach/greens	3.5
Sweet potatoes	3.2
Ice cream/sherbet/ frozen yogurt	2.0

[1]Source: Agricultural Research Service Nutrient Database for Standard Reference, Release 16-1. Mixed dishes and multiple preparations of the same food item have been omitted.
[2]Source: Cotton et al. 2004. Data are for persons aged 19 years and older, Day 1 intakes.
[3] Food groups (n=9) contributing at least 1% in descending order: cakes/cookies/quick breads/doughnuts, cantaloupe, butter, tomato/vegetable juices, hot breakfast cereal, broccoli, meal replacements/protein supplements, peppers, and pies/crisps/cobblers.

Table D1-6. Food Sources of Vitamin C.

Table D1-6a. Food sources of vitamin C ranked by milligrams of vitamin C per standard amount; also calories in the standard amount. (All are ≥20% of RDA for adult men, which is 90 mg.)

Food, Standard Amount	Vitamin C (mg)[1]	Calories[1]
Guava, raw, ½ cup	151	44
Red pepper, sweet, raw, ½ cup	142	20
Red pepper, sweet, cooked, ½ cup	116	19
Orange juice, ¾ cup	61 to 93	74 to 84
Grapefruit juice, ¾ cup	50 to 70	71 to 86
Kiwi fruit, 1 medium	70	46
Orange, raw, 1 medium	70	62
Green pepper, sweet, raw, ½ cup	60	15
Broccoli, cooked, ½ cup	51	26
Green pepper, sweet, cooked, ½ cup	51	19
Vegetable juice cocktail, ¾ cup	50	23
Strawberries, raw, ½ cup	49	27
Brussels sprouts, cooked, ½ cup	48	33
Cantaloupe, ¼ medium	47	51
Papaya, raw, ¼ medium	47	30
Kohlrabi, cooked, ½ cup	45	24
Broccoli, raw, ½ cup	39	15
Edible pod peas, cooked, ½ cup	38	42
Sweet potato, canned, ½ cup	34	116
Tomato juice, ¾ cup	33	31
Cauliflower, cooked, ½ cup	28	17
Pineapple, raw, ½ cup	28	37
Kale, cooked, ½ cup	27	18
Mango, ½ cup	23	54

Table D1-6b. Food sources of vitamin C as consumed by Americans.[2] (Percent of total consumption, CSFII, 1994-1996)

Food	Percent of total[3]
Orange/grapefruit juice	23.8
Fruit drinks	10.0
Tomatoes	9.9
Peppers	6.7
Potatoes (white)	5.8
Broccoli	5.7
Oranges/tangerines	4.1
Other juice (not citrus)	2.5
Cantaloupe	2.4
Milk	<2.0
Cabbage	<2.0
Ready-to-eat cereal	<2.0

[1]Source: Agricultural Research Service Nutrient Database for Standard Reference, Release 16-1. Mixed dishes and multiple preparations of the same food item have been omitted.
[2]Source: Cotton et al. 2004. Data are for persons aged 19 years and older, Day 1 intakes.
[3] Food groups (n=12) contributing at least 1% in descending order: milk, bananas, cabbage, strawberries, spinach/ greens, potato chips/corn chips/popcorn, grapefruit, other melon (not cantaloupe) ready-to-eat cereal, lettuce, and peas.

Table D1-7. Food Sources of Magnesium.

Table D1-7a. Food sources of magnesium ranked by milligrams of magnesium per standard amount; also calories in the standard amount. (All are ≥10% of RDA for adult men, which is 420 mg.)

Food, Standard Amount	Magnesium (mg)[1]	Calories[1]
Pumpkin/squash seed kernels, roasted, 1 ounce	151	148
Bran RTE cereal (100%), ½ cup	114	78
Brazil nuts, 1 ounce	107	186
Halibut, cooked, 3 ounces	91	119
Quinoa, 1/4 cup	89	159
Spinach, canned, ½ cup	81	25
Almonds, 1 ounce	78	164
Spinach, cooked from fresh, ½ cup	78	20
Buckwheat flour, 1/4 cup	75	101
Cashews, dry roasted, 1 ounce	74	163
Soybeans, mature, cooked, ½ cup	74	149
Pine nuts, dried, 1 ounce	71	191
Mixed nuts with peanuts, 1 ounce	67	175
White beans, canned, ½ cup	67	154
Pollock, walleye, cooked, 3 ounces	62	96
Black beans, cooked, ½ cup	60	114
Tofu, firm, nigari, ½ c	58	97
Bulgur, dry, 1/4 cup	57	120
Oat bran, raw, 1/4 cup	55	58
Navy beans, cooked, ½ cup	54	129
Soybeans, green, cooked, ½ cup	54	127
Tuna, yellowfin, cooked, 3 ounces	54	118
Artichokes, cooked, ½ cup	50	42
Peanuts, dry roasted, 1 ounce	50	166
Beet greens, cooked, ½ cup	49	19

Table D1-7b. Food sources of magnesium as consumed by Americans.[2] (Percent of total consumption, CSFII, 1994-1996)

Food	Percent of total[3]
Milk	8.3
Yeast bread	7.7
Coffee	6.5
Ready-to-eat cereal	4.9
Potatoes (white)	4.7
Beef	4.3
Poultry	3.4
Dried beans/lentils	3.4
Tomatoes	3.1
Alcoholic beverages	2.9
Potato chips/corn chips/popcorn	2.8
Cakes/cookies/quick breads/doughnuts	2.6
Pasta	2.6
Orange/grapefruit juice	2.4
Nuts/seeds	2.3
Cheese	2.2
Fish/shellfish (excluding canned tuna)	<2.0

Table D1-7, cont'd. Food Sources of Magnesium.

Food, Standard Amount	Magnesium (mg)[1]	Calories[1]
Lima beans, baby, cooked from frozen, ½ cup	47	95
Okra, cooked from frozen, ½ cup	47	26
Soymilk, 1 cup	47	120
Cowpeas, cooked, ½ cup	46	100
Hazelnuts, 1 ounce	46	178
Oat bran muffin, 1 ounce	45	77
Great northern beans, cooked, ½ cup	44	105
Oat bran, cooked, ½ cup	44	44
Buckwheat groats, roasted, cooked, ½ cup	43	78
Brown rice, cooked, ½ cup	42	108
Haddock, cooked, 3 ounces	42	95

[1]Source: Agricultural Research Service Nutrient Database for Standard Reference, Release 16-1. Mixed dishes and multiple preparations of the same food item have been omitted.
[2]Source: Cotton et al. 2004. Data are for persons aged 19 years and older, Day 1 intakes.
[3] Food groups (n=12) contributing at least 1% in descending order: bananas, rice/cooked grains, fish/shellfish (excluding canned tuna), tea, ice cream/sherbet/frozen yogurt, hot breakfast cereal, soft drinks/soda, tortillas/tacos, meal replacements/protein supplements, candy, flour/baking ingredients, and spinach/greens.

Table D1-8. Food Sources of Vitamin E.

Table D1-8a. Food sources of vitamin E ranked by milligrams of vitamin E per standard amount; also calories in the standard amount (All provide ≥10% of RDA for vitamin E for adults, which is 15 mg α–tocopherol (AT).)

Food, Standard Amount	Mg AT[1]	Calories[1]
Fortified ready-to-eat cereals, ~1 ounce	6.9 – 17.4	88 – 132
Almonds, 1 oz	7.3	164
Sunflower seeds, dry roasted, 1 oz	6.0	165
Sunflower oil, high linoleic, 1 Tbsp	5.6	120
Cottonseed oil, 1 Tbsp	4.8	120
Safflower oil, high oleic, 1 Tbsp	4.6	120
Hazelnuts (filberts), 1 oz	4.3	178
Avocado, raw, 1 each	4.2	322
Mixed nuts, dry roasted, 1 oz	3.1	168
Tomato paste, ¼ cup	2.8	54
Pine nuts, 1 oz	2.6	191
Peanut butter, 2 Tbsp	2.5	192
Tomato puree, ½ cup	2.5	48
Tomato sauce, ½ cup	2.5	39
Canola oil, 1 Tbsp	2.4	124
Wheat germ, toasted, plain, 2 Tbsp	2.3	54
Peanuts, 1 oz	2.2	166
Turnip greens, frozen, cooked, ½ cup	2.2	24
Carrot juice, canned, ¾ cup	2.1	71
Peanut oil, 1 Tbsp	2.1	119
Corn oil, 1 Tbsp	1.9	120
Olive oil, 1 Tbsp	1.9	119
Spinach, cooked, ½ cup	1.9	21
Dandelion greens, cooked, ½ cup	1.8	18
Sardine, Atlantic, in oil, drained, 3 oz	1.7	177
Blue crab, cooked/canned, 3 oz	1.6	84
Brazil nuts, 1 oz	1.6	186
Herring, Atlantic, pickled, 3 oz	1.5	222

Table D1-8b. Food sources of vitamin E as consumed by Americans[2] (Percent total consumption, CSFII, 1994-1996)

Food	% of total[3]
Salad dressing/ mayonnaise	12.0
Oils	9.5
Ready-to-eat cereal	7.9
Margarine	7.6
Cakes/cookies/quick breads/doughnuts	7.3
Tomatoes	7.0
Nuts/seeds	4.2
Yeast bread	3.7
Chips* and popcorn	3.4
Other fats**	3.4
Eggs	2.3
Meal replacement/ protein supplements	<2.0
Fish/shellfish***	<2.0

*Potato and corn chips

**Shortening/animal fat

***Excl. canned tuna

[1]Source: Agricultural Research Service Nutrient Database for Standard Reference, Release 16-1. Mixed dishes and multiple preparations of the same food item have been omitted.
[2]Source: Cotton et al. 2004. Data are for persons aged 19 years and older, Day 1 intakes.
[3]Additional food groups (n=11) contributing at least 1% in descending order: pies/crisps/cobblers, broccoli, milk, cheese, biscuits, poultry, beef, crackers/pretzels, and tortillas/tacos.

Table D1-9. Food Sources of Calcium.

Table D1-9a. Food sources of calcium ranked by milligrams of calcium per standard amount; also calories in the standard amount. (All are ≥20% of AI for adults 19-50, which is 1000 mg.)

Food, Standard Amount	Calcium (mg)[1]	Calories[1]
Fortified ready-to-eat cereals (various), 1 ounce	350 – 1000	74 – 120
Plain yogurt, nonfat (13g protein/8 oz), 8 ounces	452	127
Romano cheese, 1.5 ounces	452	165
Pasteurized process Swiss cheese, 2 ounces	438	190
Tofu, raw, regular, prepared with calcium sulfate, ½ cup	434	94
Plain yogurt, lowfat (12 g protein/8 oz), 8 ounces	415	143
Fruit yogurt, lowfat (10 g protein/8 oz), 8 ounces	345	232
Swiss cheese, 1.5 ounces	336	162
Ricotta cheese, part skim, ½ cup	335	170
Sardines, canned in oil, drained, 3 ounces	325	177
Pasteurized process American cheese food, 2 ounces	323	188
Provolone cheese, 1.5 ounces	321	150
Mozzarella cheese, part-skim, 1.5 ounces	311	129
Cheddar cheese, 1.5 ounces	307	171
Skim milk, 1 cup	306	83
Muenster cheese, 1.5 ounces	305	156
1% lowfat milk, 1 cup	290	102
Lowfat chocolate milk (1%), 1 cup	288	158
2% reduced fat milk, 1 cup	285	122
Reduced fat chocolate milk (2%), 1 cup	285	180
Buttermilk, low fat, 1 cup	284	98
Chocolate milk, 1 cup	280	208
Sesame seeds, roasted and toasted, 1 ounce	280	160

Table D1-9b. Food sources of calcium as consumed by Americans[2] (Percent of total consumption, CSFII, 1994-1996)

Food	Percent of total[3]
Milk	28.3
Cheese	19.6
Yeast bread	8.9
Ice cream/sherbet/frozen yogurt	4.0
Cakes/cookies/quick breads/doughnuts	2.4

Table D1-9, cont'd. Food Sources of Calcium.

Food, Standard Amount	Calcium (mg)[1]	Calories[1]
Whole milk, 1 cup	276	146
Yogurt, plain, whole milk (8 g protein/8 oz), 8 ounces	275	138
Ricotta cheese, whole milk, ½ cup	255	214
Blue cheese, 1.5 ounces	225	150
Mozzarella cheese, whole milk, 1.5 ounces	215	128
Feta cheese, 1.5 ounces	210	113
Tofu, firm, prepared with nigari, ½ cup	204	97

[1]Source: Agricultural Research Service Nutrient Database for Standard Reference, Release 16-1. Mixed dishes and multiple preparations of the same food item have been omitted.
[2]Source: Cotton et al. 2004. Data are for persons aged 19 years and older, Day 1 intakes.
[3] Food groups (n=11) contributing at least 1% in descending order: yogurt, ready-to-eat cereal, soft drinks/soda, tortillas/tacos, eggs, dried beans/lentils, tomatoes, meal replacements/protein supplements, corn bread/corn muffins, hot breakfast cereal, and coffee.

Table D1-10. Food Sources of Potassium.

Table D1-10a. Food sources of potassium ranked by milligrams of potassium per standard amount, also showing calories in the standard amount. (The AI for adults is 4700 mg. potassium)

Food, Standard Amount	Potassium (mg)[1]	Calories
Sweet potato, baked, 1 potato (146 g)	694	131
Tomato paste, ¼ cup	664	54
Beet greens, cooked, ½ cup	655	19
Potato, baked, flesh, 1 potato (156 g)	610	145
White beans, canned, ½ cup	595	153
Yogurt, plain, nonfat, 8 oz container	579	127
Tomato puree, ½ cup	549	48
Clams, canned, 3 oz	534	126
Yogurt, plain, lowfat, 8 oz container	531	143
Prune juice, ¾ cup	530	136
Carrot juice, ¾ cup	517	71
Blackstrap molasses, 1 Tbsp	498	47
Halibut, cooked, 3 oz	490	119
Soybeans, green, cooked, ½ cup	485	127
Tuna, yellowfin, cooked, 3 oz	484	118
Lima beans, cooked, ½ cup	478	108
Winter squash, cooked, ½ cup	448	57
Soybeans, mature, cooked, ½ cup	443	149
Rockfish, Pacific, cooked, 3 oz	442	103
Cod, Pacific, cooked, 3 oz	439	89
Bananas, 1 medium	422	105
Spinach, cooked, ½ cup	419	21
Tomato juice, ¾ cup	417	31
Tomato sauce, ½ cup	405	39
Peaches, dried, uncooked, ¼ cup	398	96
Prunes, stewed, ½ cup	398	133
Milk, nonfat, 1 cup	382	83
Pork chop, center loin, cooked, 3 oz	382	197
Apricots, dried, uncooked, ¼ cup	378	78
Rainbow trout, cooked, 3 oz	375	144

Table D1-10b. Food sources of potassium as consumed by Americans[2] (Percent of total consumption, CSFII, 1994-1996)

Food	Percent of total[3]
Milk	10.2%
Potatoes (white)	8.9%
Coffee	6.7%
Beef	6.2%
Tomatoes	6.2%
Orange/grapefruit juice	4.1%
Yeast bread	3.6%
Poultry	3.3%
Dried beans/lentils	2.8%
Bananas	2.7%
Potato/corn chips, popcorn	2.3%
Tea	2.0%
Fish/shellfish (excl. canned tuna)	<2.0%

Table D1-10, cont'd. Food Sources of Potassium.

Food, Standard Amount	Potassium (mg)[1]	Calories
Pork loin, center rib (roasts), lean, roasted, 3 oz	371	190
Buttermilk, cultured, lowfat, 1 cup	370	98
Cantaloupe, ¼ medium	368	47
1% milk, 1 cup	366	102
2% milk, 1 cup	366	122
Honeydew melon, 1/8 medium	365	58
Lentils, cooked, ½ cup	365	115
Plantains, cooked, ½ cup	358	90
Kidney beans, cooked, ½ cup	357	113
Orange juice, ¾ cup	355	85
Split peas, cooked, ½ cup	355	116
Yogurt, plain, whole milk, 8 oz container	352	138

[1]Source: ARS Nutrient Database for Standard Reference, Release 16-1. Mixed dishes and multiple preparations of the same food item have been omitted.
[2]Source: Cotton et al. 2004. Data are for persons aged 19 years and older, Day 1 intakes.
[3]Additional food groups (n=11) contributing at least 1% in descending order: ice cream/sherbet/frozen yogurt, ready-to-eat cereal, fish/shellfish (excluding canned tuna). Cakes/cookies/quick breads/doughnuts, alcoholic beverages, cheese, pork (fresh/unprocessed), lettuce, ham, carrots, and onions.

Table D1-11. Food Sources of Dietary Fiber.

Table D1-11a. Food sources of dietary fiber ranked by grams of dietary fiber per standard amount; also calories in the standard amount (All are ≥10% of AI for adult women, which is 25 grams.)

Food, Standard Amount	Dietary fiber (g)[1]	Calories[1]
Bran ready-to-eat cereal (100%), ½ cup	9.6	78
Kidney beans, canned, ½ cup	8.2	109
Split peas, cooked, ½ cup	8.1	116
Lentils, cooked, ½ cup	7.8	115
Black beans, cooked, ½ cup	7.5	114
Pinto beans, cooked, ½ cup	7.0	120
Lima beans, cooked, ½ cup	6.6	108
Artichoke, globe, cooked, 1 each	6.5	60
White beans, canned, ½ cup	6.3	154
Chickpeas, cooked, ½ cup	6.2	135
Great northern beans, cooked, ½ cup	6.2	105
Navy beans, cooked, ½ cup	5.8	129
Cowpeas, cooked, ½ cup	5.6	100
Soybeans, mature, cooked, ½ cup	5.2	149
Bran ready-to-eat cereals, various, ~1 ounce	2.6-5.1	91-105
Crackers, rye wafers, plain, 2 wafers	5.0	74
Guava, 1 medium	4.9	46
Sweet potato, baked, with peel, 1 medium (146 g)	4.8	131
Asian pear, raw, 1 small	4.4	51
Green peas, cooked, ½ cup	4.4	67
Whole wheat English muffin, 1 each	4.4	134
Pear, raw, 1 small	4.3	81
Bulgur, cooked, ½ cup	4.1	76
Mixed vegetables, cooked, ½ cup	4.0	59
Raspberries, raw, ½ cup	4.0	32
Sweet potato, boiled, no peel, 1 medium (156 g)	3.9	119
Blackberries, raw, ½ cup	3.8	31
Potato, baked, with skin, 1 medium	3.8	240
Soybeans, green, cooked, ½ cup	3.8	127

Table D1-11b. Food sources of dietary fiber as consumed by Americans[2] (Percent of total consumption, CSFII, 1994-1996)

Food	Percent of total[3]
Yeast Bread	14.0
Dried beans/lentils	9.2
Potatoes (white)	7.5
Ready-to-eat cereal	6.9
Tomatoes	4.9
Pasta	3.7
Potato/corn chips, popcorn	3.6
Cakes/cookies/quick breads/doughnuts	3.2
Apples/applesauce	2.7
Bananas	2.7
Peas	2.2
Flour/baking ingredients	2.2
Carrots	2.1
Hot breakfast cereals	<2.0
Corn	<2.0

Table D1-11, cont'd. Food Sources of Dietary Fiber.

Food, Standard Amount	Dietary fiber (g)[1]	Calories[1]
Stewed prunes, ½ cup	3.8	133
Figs, dried, ¼ cup	3.7	93
Dates, ¼ cup	3.6	126
Oat bran, raw, ¼ cup	3.6	58
Pumpkin, canned, ½ cup	3.6	42
Spinach, frozen, cooked, ½ cup	3.5	30
Almonds, 1 ounce	3.3	164
Apple with skin, raw, 1 medium	3.3	72
Brussels sprouts, cooked, ½ cup	3.2	33
Whole wheat spaghetti, cooked, ½ cup	3.2	87
Banana, 1 medium	3.1	105
Orange, raw, 1 medium	3.1	62
Oat bran muffin, 1 small	3.0	178
Pearled barley, cooked, ½ cup	3.0	97
Sauerkraut, canned, solids and liquids, ½ cup	3.0	23
Tomato paste, ¼ cup	2.9	54
Winter squash, cooked, ½ cup	2.9	38
Broccoli, cooked, ½ cup	2.8	26
Shredded wheat ready-to-eat cereals, various, ~1 ounce	2.6- 2.8	78-95
Parsnips, cooked, ½ cup	2.8	55
Turnip greens, cooked, ½ cup	2.8	24
Collards, cooked, ½ cup	2.7	25
Okra, frozen, cooked, ½ cup	2.6	26
Peas, edible-podded, cooked, ½ cup	2.5	42

[1]Source: ARS Nutrient Database for Standard Reference, Release 16-1. Mixed dishes and multiple preparations of the same food item have been omitted.
[2]Source: Cotton et al. 2004. Data are for persons aged 19 years and older, Day 1 intakes (7)
[3] Food groups (n=13) contributing at least 1% in descending order: tortillas/tacos, onions, lettuce, nuts/seeds, hot breakfast cereal, broccoli, green beans, corn, rice/cooked grains, crackers/pretzels, pies/crisps/cobblers, oranges/tangerines, spinach/greens.

Table D1-12. Functions of "Shortfall" Nutrients.

Nutrient	Function
Vitamin A	Vitamin A plays a significant role in vision, gene expression, cellular differentiation, morphogenesis, growth, immune function, and maintenance of healthy bones, teeth, and hair.
Vitamin C	As a dietary antioxidant, vitamin C counteracts the oxidative damage to biomolecules; additionally, vitamin C helps strengthen blood vessels and maintain healthy gums, and aids in the absorption of iron.
Vitamin E	As a dietary antioxidant, vitamin E counteracts the oxidative damage to biomolecules; in addition, vitamin E helps in the formation of red blood cells and muscles.
Calcium	Calcium is the key nutrient in the development and maintenance of bones; additionally calcium aids in blood clotting and muscle and nerve functioning.
Magnesium	Magnesium plays a key role in the development and maintenance of bones, as well as activates enzymes necessary for energy release.
Potassium	Potassium assists in muscle contraction, maintaining fluid and electrolyte balance in cells, transmitting nerve impulses, and releasing energy during metabolism. Diets rich in potassium lower blood pressure, blunt the adverse effects of salt on blood pressure, may reduce the risk of developing kidney stones, and may decrease bone loss.
Dietary Fiber	Fiber helps maintain the health of the digestive tract and promotes proper bowel functioning.

TABLE D1-13. Revised USDA Food Intake Patterns for Meeting Recommended Nutrient Intakes

This table shows the suggested amounts of food to consume from the basic food groups, subgroups, and oils to meet recommended nutrient intakes at 12 different calorie levels. Nutrient and energy contributions from each group are calculated based on nutrient dense forms of foods in each group (e.g., lean meats, fat-free milk). The table also shows the amount of discretionary calories that can be accommodated within each calorie level in addition to the suggested amounts of nutrient dense forms of foods in each group.

	Daily Amount of Food From Each Group In Pattern (Vegetable subgroup amounts are per week)											
CALORIE LEVEL	**1,000**	**1,200**	**1,400**	**1,600**	**1,800**	**2,000**	**2,200**	**2,400**	**2,600**	**2,800**	**3,000**	**3,200**
FOOD GROUP[1]	**Food group amounts shown in cup (c) or ounce equivalents (oz eq) with number of servings (srv) in parentheses when it differs from the other units. See note for quantity equivalents for foods in each group.[2] Oils are shown in grams (g).**											
FRUITS	1 c (2 srv)	1 c (2 srv)	1.5 c (3 srv)	1.5 c (3 srv)	1.5 c (3 srv)	2 c (4 srv)	2 c (4 srv)	2 c (4 srv)	2 c (4 srv)	2.5 c (5 srv)	2.5 c (5 srv)	2.5 c (5 srv)
VEGETABLES[3]	1 c (2 srv)	1.5 c (3 srv)	1.5 c (3 srv)	2 c (4 srv)	2.5 c (5 srv)	2.5 c (5 srv)	3 c (6 srv)	3 c (6 srv)	3.5 c (7 srv)	3.5 c (7 srv)	4 c (8 srv)	4 c (8 srv)
Dark-green veg.	1 c/wk	1 ½ c/wk	1 ½ c/wk	2 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk
Orange veg.	½ c/wk	1 c/wk	1 c/wk	1 ½ c/wk	2 c/wk	2 c/wk	2 c/wk	2 c/wk	2 ½ c/wk	2 ½ c/wk	2 ½ c/wk	2 ½ c/wk
Legumes	½ c/wk	1 c/wk	1 c/wk	2 ½ c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3 ½ c/wk	3 ½ c/wk	3 ½ c/wk	3 ½ c/wk
Starchy veg.	1½ c/wk	2 ½ c/wk	2 ½ c/wk	2 ½ c/wk	3 c/wk	3 c/wk	6 c/wk	6 c/wk	7 c/wk	7 c/wk	9 c/wk	9 c/wk
Other veg.	4 c/wk	4 ½ c/wk	4 ½ c/wk	5 ½ c/wk	6 ½ c/wk	6 ½ c/wk	7 c/wk	7 c/wk	8 ½ c/wk	8.5 c/wk	10 c/wk	10 c/wk
GRAINS[4]	3 oz eq	4 oz eq	5 oz eq	5 oz eq	6 oz eq	6 oz eq	7 oz eq	8 oz eq	9 oz eq	10 oz eq	10 oz eq	10 oz eq
Whole grains	1.5	2	2.5	3	3	3	3.5	4	4.5	5	5	5
Other grains	1.5	2	2.5	2	3	3	3.5	4	4.5	5	5	5
MEAT AND BEANS	2 oz eq	3 oz eq	4 oz eq	5 oz eq	5 oz eq	5.5 oz eq	6 oz eq	6.5 oz eq	6.5 oz eq	7 oz eq	7 oz eq	7 oz eq
MILK	2 c	2 c	2 c	3 c	3 c	3 c	3 c	3 c	3 c	3 c	3 c	3 c
Oils[5]	14 g	17 g	18 g	20 g	22 g	24 g	27 g	27 g	30 g	34 g	40 g	46 g
Discretionary calories[6]	154	163	172	181	190	208	235	235	244	262	298	334

Notes for Table D1-13:

1. Food items included in each group and subgroup:

Fruits	All fresh, frozen, canned, and dried fruits and fruit juices: for example, oranges and orange juice, apples and apple juice, bananas, grapes, melons, berries, raisins. In developing the food patterns, only fruits and juices with no added sugars or fats were used. **See note 6 on discretionary calories if products with added sugars or fats are consumed.**
Vegetables	In developing the food patterns, only vegetables with no added fats or sugars were used. **See note 6 on discretionary calories if products with added fats or sugars are consumed.**
Dark-green vegetables	All fresh, frozen, and canned dark-green vegetables, cooked or raw: for example, broccoli; spinach; romaine; collard, turnip, and mustard greens.
Orange vegetables	All fresh, frozen, and canned orange and deep-yellow vegetables, cooked or raw: for example, carrots, sweet potatoes, winter squash, pumpkin.
Legumes (dry beans and peas)	All cooked dry beans and peas and soybean products: for example, pinto beans, kidney beans, lentils, chickpeas, tofu. (See comment under meat and beans group about counting legumes in the vegetable or the meat and beans group.)
Starchy vegetables	All fresh, frozen, and canned starchy vegetables: for example, white potatoes, corn, green peas.
Other vegetables	All fresh, frozen, and canned other vegetables, cooked or raw: for example, tomatoes, tomato juice, lettuce, green beans, onions.
Grains	In developing the food patterns, only grains in low-fat and low sugars forms were used. **See note 6 on discretionary calories if products that are higher in fat and/or added sugars are consumed.**
Whole grains	All whole grain products and whole grains used as ingredients: for example, whole wheat and rye breads, whole grain cereals and crackers, oatmeal, brown rice.
Other grains	All refined grain products and refined grains used as ingredients: for example, white breads, enriched grain cereals and crackers, enriched pasta, white rice.
Meat, poultry, fish, dry beans, eggs, and nuts (Meat & beans)	All meat, poultry, fish, dry beans and peas, eggs, nuts, seeds. Most choices should be lean or low fat. **See note 6 on discretionary calories if higher fat products are consumed.** Dry beans and peas and soybean products are considered part of this group as well as the vegetable group, but should be counted in one group only.
Milk, yogurt, and cheese (Milk)	All milks, yogurts, frozen yogurts, dairy desserts, cheeses (except cream cheese), including lactose-free and lactose-reduced products. Most choices should be fat-free or low-fat. In developing the food patterns, only fat-free milk was used. **See note 6 on discretionary calories if one consumes low-fat, reduced fat, or whole milk or milk products--or milk products that contain added sugars.** Calcium-fortified soy beverages are an option for those who want a non-dairy calcium source.

2. Quantity equivalents for each food group:

Grains The following each count as 1 ounce equivalent (1serving) of grains: 1/2 cup cooked rice, pasta, or cooked cereal; 1 ounce dry pasta or rice; 1 slice bread; 1 small muffin (1 oz); 1 cup ready-to-eat cereal flakes.

Fruits and vegetables The following each count as 1 cup (2 servings) of fruits or vegetables: 1 cup cut-up raw or cooked fruit or vegetable, 1 cup fruit or vegetable juice, 2 cups leafy salad greens.

Meat and beans **The following each count as 1 ounce equivalent: 1 ounce lean meat, poultry, or fish; 1 egg; ¼ cup cooked dry beans or tofu; 1 Tbsp peanut butter; ½ ounce nuts or seeds.**

Milk The following each count as 1 cup (1 serving) of milk: 1 cup milk or yogurt, 1 ½ ounces natural cheese such as cheddar cheese, or 2 ounces process cheese. Discretionary calories must be counted for all choices except nonfat milk.

3. Explanation of vegetable subgroup amounts:

Vegetable subgroup amounts are shown in this table as weekly amounts, because it would be difficult for consumers to select foods from each subgroup daily. A daily amount that is one-seventh of the weekly amount listed is used in calculations of nutrient and energy levels in each pattern.

4. Explanation of grain subgroup amounts:

The whole grain subgroup amounts shown in this table represent at least 3 one-ounce servings, and one-half of the total amount as whole grains for all calorie levels of 1600 and above. This is the minimum suggested amount of whole grains to consume as part of the food patterns. More whole grains up to all of the grains recommended may be selected, with offsetting decreases in the amounts of other (enriched) grains. In patterns designed for younger children (1,000, 1,200, and 1,400 calories), one-half of the total amount of grains is shown as whole grains.

5. Explanation of oils:

Oils (including *trans*-free soft margarine) shown in this table represent the amounts that are added to foods during processing, cooking, or at the table. Oils and soft margarines include vegetable oils and soft vegetable oil table spreads that are trans-free. The amounts of oils listed in this table are not considered to be part of discretionary calories because they are a major source of the vitamin E and polyunsaturated fatty acids, including the essential fatty acids, in the food pattern. In contrast, solid fats are listed separately in the discretionary calorie table (Table D1-14) because, compared with oils, they are higher in saturated fatty acids and lower in vitamin E and mono- and polyunsaturated fatty acids, including essential fatty acids. The amounts of each type of fat in the food intake pattern were based on 60% oils and/or trans-free soft margarines and 40% solid fat. The amounts in typical American diets are about 42% oils or soft margarines and about 58% solid fats.

6. Discretionary calories are the remaining amount of calories in each food pattern after selecting the specified number of nutrient dense forms of foods in each food group. The number of discretionary calories assumes that food items in each food group are selected in nutrient dense forms (that is, forms that are fat-free or low-fat and that contain no added sugars). Solid fat and sugar calories always need to be counted as discretionary calories, as in the following examples:

The fat in low-fat, reduced fat, or whole milk or milk products or cheese and the sugar and fat in chocolate milk, ice cream, pudding, etc.
The fat in higher fat meats (e.g., ground beef with more than 5% fat by weight, poultry with skin, higher fat luncheon meats, sausages)
The sugars added to fruits and fruit juices with added sugars or fruits canned in syrup
The added fat and/or sugars in vegetables prepared with added fat or sugars
The added fats and/or sugars in grain products containing higher levels of fats and/or sugars (e.g., sweetened cereals, higher fat crackers, pies and other pastries, cakes, cookies)

Total discretionary calories should be limited to the amounts shown in the table at each calorie level. Additional information about discretionary calories, including an example of the division of these calories between solid fats and added sugars, is provided in Table D1-14.

TABLE D-1-14. Discretionary Calories in Revised USDA Food Intake Patterns.

Discretionary calories are the remaining amount of calories in each food pattern after nutrient dense forms of foods in each food group are selected. This table shows the number of discretionary calories remaining in each food intake pattern if nutrient dense foods are selected. Those trying to lose weight may choose not to use discretionary calories. For those wanting to maintain their weight, discretionary calories may be used to increase the amount of food selected from each food group; to consume foods that are not in the lowest fat form (such as 2% milk or medium fat meat) or that contain added sugars; to add oil, fat, or sugars to foods; or to consume alcohol. The table shows an example of how these calories may be divided between solid fats and added sugars.

FOOD PATTERN CALORIE LEVEL	Discretionary calories that remain in food patterns at each calorie level											
	1,000	**1,200**	**1,400**	**1,600**	**1,800**	**2,000**	**2,200**	**2,400**	**2,600**	**2,800**	**3,000**	**3,200**
Discretionary calories[1]	154	163	172	181	190	208	235	235	244	262	298	334
Example of division of discretionary calories: Solid fats are shown in grams (g); added sugars in grams (g) and teaspoons (tsp).												
Solid fats[2]	10 g	11 g	12 g	13 g	14 g	16 g	19 g	19 g	20 g	22 g	26 g	30 g
Added sugars[3]	16 g (4tsp)	20 g (5tsp)	20 g (5tsp)	24 g (6tsp)	32 g (8tsp)	40 g (10 tsp)	48 g (12 tsp)	56 g (14 tsp)	64 g (16 tsp)	72 g (18 tsp)	80 g (20 tsp)	112 g (28 tsp)

1. Discretionary calories: In developing the food patterns, food items in nutrient dense forms (that is, forms that are fat-free or low-fat and that contain no added sugars) were used. The number of discretionary calories assumes that food items in each food group are selected in nutrient dense forms. Solid fat and sugar calories always need to be counted as discretionary calories, as in the following examples:

- The fat in low-fat, reduced fat, or whole milk or milk products or cheese and the sugar and fat in chocolate milk, ice cream, pudding, etc.
- The fat in higher fat meats (e.g., ground beef with more than 5% fat by weight, poultry with skin, higher fat luncheon meats, sausages)
- The sugars added to fruits and fruit juices with added sugars or fruits canned in syrup
- The added fat and/or sugars in vegetables prepared with added fat or sugars
- The added fats and/or sugars in grain products containing higher levels of fats and/or sugars (e.g., sweetened cereals, higher fat crackers, pies and other pastries, cakes, cookies)

Total discretionary calories should be limited to the amounts shown in the table at each calorie level. The calories assigned to discretionary calories may be used to increase intake from the basic food groups; to select foods from these groups that are higher in fat or with added sugars; to add oils, solid fats or sugars to foods or beverages; or to consume alcohol. See note 2 on limits for solid fats.

2. Solid fats: Amounts of solid fats listed in the table represent about 7 to 8% of calories from saturated fat.
Foods in each food group are represented in their lowest fat forms, such as fat-free milk and skinless chicken. Solid fats shown in this table represent the amounts of fats that may be added in cooking or at the table, and fats consumed when higher fat items are selected from the food groups (e.g., whole milk instead of fat-free milk, chicken with skin, or cookies instead of bread), without exceeding the recommended limits on saturated fat intake. Solid fats include meat and poultry fats eaten either as part of the meat or poultry product or separately; milk fat such as that in whole milk, cheese, and butter; shortenings used in baked products; and hard margarines.

Solid fats and oils are separated because their fatty acid compositions differ. Solid fats are higher in saturated fatty acids, and commonly consumed oils and trans-free soft margarines are higher in vitamin E and mono- and polyunsaturated fatty acids, including essential fatty acids. Oils listed in Table D-1-13, and are not considered to be part of discretionary calories because they are a major source of the essential fatty acids and vitamin E in the food patterns.

The gram weights for solid fats are the amounts of these products that can be included in the pattern, and are not identical to the amount of lipids in these items, since some products (margarines, butter) contain water or other ingredients in addition to lipids.

3. Added sugars:
Added sugars are the sugars and syrups added to foods and beverages in processing or preparation, not the naturally-occurring sugars in fruits or milk. The amounts of added suggested in the example are NOT specific recommendations for amounts of added sugars to consume, but rather represent the amounts that can be included in each food intake pattern without over-consuming calories. The suggested amounts of added sugars may be helpful as part of the food patterns to allow for some sweetened foods or beverages, without exceeding energy needs. This use of added sugars as a calorie balance requires two assumptions: (1) that selections are made from all food groups in accordance with the suggested amounts and (2) that additional fats are used in the amounts shown, which together with the fats in the core food groups represent about 30% of calories from fat.

TABLE D1-15. Nutrient Profiles[1] of USDA Food Intake Pattern Food Groups and Subgroups P. 1, Vitamins

This table shows the nutrient composition of each food group and subgroup. The nutrients are listed for a standard amount from each group, and the values are weighted averages of the nutrients in all foods in each group, in their lowest fat and sugar form. Weights for these average values are based on the amounts of each food consumed by Americans according to national surveys. See the notes page for additional information.

Food Groups and subgroups	Standard Amount[2]	VITAMIN A	VITAMIN E	VITAMIN C	THIAMIN	RIBOFLAVIN	NIACIN	VITAMIN B_6	FOLATE	VITAMIN B_{12}
		µg RAE[3]	mg AT[3]	mg	mg	mg	mg	mg	µg	µg
FRUITS	1/2 cup	19	0.2	30	0.07	0.04	0.4	0.1	28	0.0
VEGETABLES										
Dark-green	1/2 cup	167	1.0	30	0.05	0.10	0.4	0.1	81	0.0
Deep-yellow	1/2 cup	554	0.6	5	0.19	0.04	0.6	0.1	10	0.0
Legumes	1/2 cup	0	0.6	0	0.11	0.05	0.3	0.1	111	0.0
Starchy	1/2 cup	2	0.0	6	0.09	0.03	1.1	0.2	14	0.0
Other	1/2 cup	12	0.4	10	0.04	0.04	0.5	0.1	17	0.0
GRAINS[4]										
Whole grains	1 slice/1/2 cup	26	0.1	1	0.12	0.10	1.3	0.1	37	0.3
Other grains	1 slice/1/2 cup	6	0.1	0	0.14	0.09	1.3	0.0	36	0.1
MEAT AND BEANS	1 ounce	18	0.2	0	0.06	0.08	1.8	0.1	5	0.6
MILK[5]	1 cup	69	0.0	0	0.11	0.45	0.2	0.1	12	1.3
Oils/soft Margarines	100 g	109	14.3	0	0.00	0.00	0.0	0.0	0.1	0.0
Solid Fats	100 g	447	4.1	0	0.00	0.02	0.0	0.0	1.4	0.1
Added Sugars	4 grams/1 tsp.	0	0.0	0	0.00	0.00	0.0	0.0	0.0	0.0

TABLE D1-15, (cont'd.). Nutrient Profiles[1] of USDA Food Intake Pattern Food Groups and Subgroups P. 2, Minerals

Food Groups and subgroups	Standard Amount[2]	CALCIUM	PHOSPHORUS	MAGNESIUM	IRON	ZINC	COPPER	SODIUM	POTASSIUM
		mg	mg	mg	mg	mg	mg	mg	mg
FRUITS	1/2 cup	13	20	15	0.3	0.1	0.07	3	253
VEGETABLES									
Dark-green	1/2 cup	50	39	25	1.0	0.3	0.07	30	229
Deep-yellow	1/2 cup	23	25	9	0.3	0.2	0.03	41	214
Legumes	1/2 cup	56	115	43	2.3	1.0	0.23	6	321
Starchy	1/2 cup	8	43	19	0.4	0.3	0.12	5	286
Other	1/2 cup	21	21	10	0.5	0.2	0.06	57	163
GRAINS[4]									
Whole grains	1 slice/1/2 cup	29	82	27	1.6	0.8	0.07	99	78
Other grains	1 slice/1/2 cup	31	34	7	1.2	0.2	0.06	154	29
MEAT AND BEANS	1 ounce	6	63	9	0.6	1.0	0.05	110	96
MILK[5]	1 cup	306	247	27	0.1	1.0	0.03	103	382
Oils/soft Margarines	100 g	3	2	0	0.0	0.0	0.00	132	4
Solid Fats	100 g	14	13	1	0.1	0.0	0.01	163	16
Added Sugars	4 grams/1 tsp.	0	0	0	0.0	0.0	0.00	0	0

TABLE D1-15, (cont'd.). Nutrient Profiles[1] of USDA Food Intake Pattern Food Groups and Subgroups P. 3, Macronutrients

Food Groups and subgroups	Standard Amount[2]	CALORIES	PROTEIN	CARBO-HYDRATE	DIETARY FIBER	TOTAL FAT	SATURATED FAT	MONO. FAT	POLY. FAT	CHOLESTEROL	LINOLEIC ACID	α-LINOLENIC ACID
		kcal	g	g	g	g	g	g	g	mg	g	g
FRUITS	1/2 cup	70	1	17	1	0.2	0.0	0.0	0.1	0	0.0	0.02
VEGETABLES												
Dark-green	1/2 cup	20	2	4	2	0.2	0.0	0.0	0.1	0	0.0	0.06
Deep-yellow	1/2 cup	32	1	7	2	0.1	0.0	0.0	0.1	0	0.1	0.00
Legumes	1/2 cup	113	8	19	6	1.0	0.2	0.2	0.5	0	0.4	0.11
Starchy	1/2 cup	73	2	17	2	0.2	0.0	0.0	0.1	0	0.1	0.01
Other	1/2 cup	17	1	4	1	0.2	0.0	0.0	0.1	0	0.1	0.02
GRAINS[4]												
Whole grains	1 slice/1/2 cup	78	2	16	2	1.0	0.2	0.3	0.4	0	0.4	0.02
Other grains	1 slice/1/2 cup	84	2	16	1	1.1	0.3	0.4	0.4	1	0.3	0.03
MEAT AND BEANS	1 ounce eq.	58	8	0	0	2.7	0.8	1.1	0.4	36	0.4	0.02
MILK[5]	1 cup	83	8	12	0	0.2	0.3	0.1	0.0	5	0.0	0.00
Oils/soft Margarines	100 g	838	0	0	0	94.8	14.3	32.7	43.4	0	39.9	3.48
Solid Fats	100 g	758	0	0	0	85.4	36.1	32.7	12.5	115	11.0	1.40
Added Sugars	4 grams/1 tsp.	16	0	4	0	0.0	0.0	0.0	0.0	0	0.0	0.00

Notes for Table D1-15:

1. A Nutrient Profile is the nutrient content of a standardized amount of food from each food group or subgroup. It is calculated based on a weighted average of all foods in the group or subgroup eaten by Americans, as reported in the 1999-2000 NHANES survey. Weights for the nutrient profiles are determined from the relative amounts reported to have been consumed of each food in a particular group or subgroup. Nutrient values for each food group or subgroup have been calculated using values from USDA Nutrient Data Base, SR16-1.

2. The Standard Amount is an amount used in calculating nutrient profiles. It is expressed in volume or weight-equivalent measures. For the major food groups, it represents the amount in one "Pyramid serving" of the food. Serving equivalents for common foods in each group are listed in Note 2 to Table D1-10.

3. Vitamin A is expressed in µg RAE, vitamin E in mg AT. These units are used in the recent Dietary Reference Intakes reports. When values for a food were not available in these units, existing units were converted to obtain an estimate. Vitamin A from carotenoid sources (fruits and vegetables) expressed in µg RE was divided by 2 to obtain an estimate of vitamin A in µg RAE. Vitamin E expressed in mg ATE was multiplied by 0.8 to obtain an estimate of vitamin E in mg AT.

4. The nutrient profiles for whole grains and other grains include some added nutrients from moderately fortified ready-to-eat cereals. Moderately fortified ready-to-eat cereals were included as part of the nutrient profiles because of their widespread use among Americans.

5. The nutrient profile for the Milk Group is based on the nutrients in fat-free fluid milk.

Table D1-16. Nutrients in USDA Revised Food Intake Patterns

Shown in amounts and percents of RDA, AI, or other recommendation.

CALORIE LEVEL	VIT. A mcg RAE/% RDA	VIT. E mg AT/% RDA	VIT. C mg/% RDA	THIAMIN mg/% RDA	RIBOFL. mg/% RDA	NIACIN mg/% RDA	VIT. B6 mg/% RDA	FOLATE µg/% RDA	VIT. B12 µg/% RDA
1000	471	3.9	83	1.0	1.5	10.0	1.1	264	4
% REC--1 to 3	157	66	551	198	304	166	222	176	467
1200	610	5.5	93	1.3	1.7	13.7	1.4	344	5
% REC--4 to 8	152	79	370	211	291	171	240	172	410
1400	668	6.2	123	1.5	2.0	17.2	1.7	413	6
% REC--4 to 8	167	88	491	253	327	215	291	207	470
1600	871	7.3	131	1.8	2.5	19.6	2.1	495	7.6
% REC--M/F 9 to 13	145	66	291	197	283	163	208	165	422
% REC--F 51 to 70	124	49	174	161	231	140	139	124	317
1800	1013	8.2	144	2.0	2.7	21.5	2.2	580	7.7
% REC--F 31-50	145	55	192	181	245	153	173	145	319
% REC--M/F 9 to 13	169	75	320	221	299	179	225	193	425
% REC--F 14-18	145	55	222	199	269	153	187	145	319
2000	1057	9.0	174	2.1	2.8	22.8	2.4	610	7.9
% REC--F19-30	151	60	232	190	252	163	186	153	331
% REC--M 51-70	117	60	193	174	213	142	142	153	331
2200	1093	9.7	181	2.3	2.9	26.0	2.7	663	8.4
% REC--M 31-50	121	65	201	194	226	162	211	166	349
% REC--M 14-18	121	65	242	194	226	162	211	166	349
2400	1132	10.1	182	2.5	3.1	28.2	2.9	702	9
% REC--M 19-30	126	68	202	207	237	176	222	176	367
2600	1239	11.0	189	2.7	3.2	30.1	3.1	767	9
% REC--M 19-30	138	73	210	224	248	188	238	192	374
2800	1285	11.7	219	2.9	3.4	32.7	3.3	835	9
% REC--M 14-18	143	78	292	243	262	205	257	209	392
3000	1322	13	227	3	3	34	3	850	9
% REC--M 19-30	147	87	252	248	264	210	269	212	392
3200	1346	14	227	3	3	34	3	850	9
% REC--M 14-18	150	94	302	248	265	210	269	212	393

Table D1-16, (cont'd.). Nutrients in Revised USDA Food Intake Patterns.

Shown in amounts and percents of RDA, AI, or other recommendation.

CALORIE LEVEL	CALCIUM mg/% AI	PHOSPH. mg/% RDA	MAGNES. mg/% RDA	IRON mg/% RDA	ZINC mg/% RDA	COPPER mg/% RDA	SODIUM mg/% UL	POTASS. mg/% AI
1000	791	909	184	7	6	1	923	2053
% REC--1 to 3	158	198	230	107	215	195	62	68
1200	854	1075	229	10	8	1	1194	2442
% REC--4 to 8	107	215	176	102	167	200	63	64
1400	902	1217	269	12.5	10.0	1.1	1437	2844
% REC--4 to 8	113	243	207	125	200	240	76	75
1600	1253	1615	340	14.6	12.9	1.3	1653	3589
% REC--M/F 9 to 13	96	129	142	182	161	181	75	80
% REC--F 51 to 70	104	231	106	182	161	141	72	76
1800	1317	1693	368	16.7	13.5	1.4	1845	3853
% REC--F 31-50	132	242	115	93	168	158	80	82
% REC--M 9 to 13	101	135	153	208	168	203	84	86
% REC--F 14-18	101	135	102	111	150	160	80	82
2000	1333	1746	386	17.3	14.1	1.5	1910	4154
% REC--F19-30	133	249	125	96	176	169	83	88
% REC--M 51-70	111	249	92	216	128	169	83	88
2200	1376	1875	425	19.4	15.4	1.7	2110	4525
% REC--M 31-50	138	268	101	242	140	191	92	96
% REC--M 14-18	106	150	104	176	140	194	92	96
2400	1409	1965	446	21	16	2	2298	4624
% REC--M 19-30	141	281	112	263	149	201	100	98
2600	1461	2064	480	23	17	2	2464	4906
% REC--M 19-30	146	295	120	290	157	220	107	104
2800	1507	2175	516	25	18	2	2651	5261
% REC--M 14-18	116	174	126	229	167	240	115	112
3000	1521	2209	531	26	19	2	2697	5496
% REC--M 19-30	152	316	133	321	170	249	117	117
3200	1522	2210	531	26	19	2	2711	5497
% REC--M 14-18	117	177	130	233	170	253	118	117

Table D1-16, (cont'd.). Nutrients in Revised USDA Food Intake Patterns. **Page 3, macronutrients**

Shown in amounts and percents of RDA, AI, or other recommendation.

CALORIE LEVEL	CALORIES kcal/% goal	PROTEIN g/% RDA	CARBOHY. g/% RDA	FIBER g/% AI	Linoleic Acid g/% AI	a-linolenic acid g/% AI	CHOLESTEROL mg/% DV
			Est. total				
1000	993	44	140	13	8	1	100
% REC--1 to 3	99	336	108	94	108	109	33
1200	1234	56	171	18	11	1	134
% REC--4 to 8	103	294	131	104	109	117	45
1400	1458	67	204	21	12.1	1.2	172
% REC--4 to 8	104	350	157	107	121	130	57
1600	1672	86	227	26	13.5	1.3	212
% REC--M/F 9 to 13	104	254	175	114	113	110	71
% REC--F 51 to 70	104	188	175	114	123	120	71
1800	1839	91	256	29	14.8	1.5	214
% REC--F 31-50	102	198	197	115	124	134	71
% REC--M/F 9 to 13	102	267	197	115	124	123	71
% REC--F 14-18	102	198	197	115	135	134	71
2000	1994	96	278	31	16.2	1.6	236
% REC--F 19-30	100	208	214	111	135	147	79
% REC--M 51-70	100	171	214	111	116	101	79
2200	2217	103	313	35	18.1	1.8	256
% REC--M 31-50	101	184	241	112	107	111	85
% REC--M 14-18	101	199	241	112	113	111	85
2400	2390	109	337	37	19.4	1.9	278
% REC--M 19-30	100	195	259	109	114	119	93
2600	2584	114	372	41	21.1	2.1	280
% REC--M 19-30	99	203	286	112	124	129	93
2800	2813	121	413	44	22.5	2.2	298
% REC--M 14-18	100	232	318	112	141	137	99
3000	3023	122	441	46	26	3	304
% REC--M 19-30	101	218	340	109	152	157	101
3200	3202	122	467	46	29	3	309
% REC--M 14-18	100	235	359	104	180	174	103

Table D1-16, (cont'd.). Nutrients in Revised USDA Food Intake Patterns. **Page 4, macronutrients**

Shown in amounts and percent of calories for comparison to AMDR or other recommendation.

CALORIE LEVEL	CALORIES kcal/% goal	PROTEIN g/% kcal	CARBOHY. g/% kcal	TOTAL FAT g/% kcal	SAT. FAT g/% kcal	MONO. FAT g/% kcal	POLY. FAT g/% kcal	Linoleic Acid g/% kcal	a-linolenic acid g/% kcal
1000	993	44	140	31.3	9.5	11.5	8.4	7.6	0.8
% REC--1 to 3	99	18	56	28	8.6	10	8	6.9	0.7
1200	1234	56	171	39.5	10.5	14.4	12.0	10.9	1.1
% REC--4 to 8	103	18	55	29	7.7	10	9	7.9	0.8
1400	1458	67	204	45.3	12.1	16.5	13.4	12.1	1.2
% REC--4 to 8	104	18	56	28	7.5	10	8	7.5	0.7
1600	1672	86	227	50.6	13.6	18.5	15.0	13.5	1.3
% REC--M/F 9 to 13	104	21	54	27	7.3	10	8	7.3	0.7
% REC--F 51 to 70	104	21	54	27	7.3	10	8	7.3	0.7
1800	1839	91	256	54.8	14.5	19.9	16.5	14.8	1.5
% REC--F 31-50	102	20	56	27	7.1	10	8	7.3	0.7
% REC--M/F 9 to 13	102	20	56	27	7.1	10	8	7.3	0.7
% REC--F 14-18	102	20	56	27	7.1	10	8	7.3	0.7
2000	1994	96	278	60.8	16.4	22.1	18.0	16.2	1.6
% REC--F 19-30	100	19	56	27	7.4	10	8	7.3	0.7
% REC--M 51-70	100	19	56	27	7.4	10	8	7.3	0.7
2200	2217	103	313	67.1	17.8	24.4	20.1	18.1	1.8
% REC--M 31-50	101	19	56	27	7.2	10	8	7.3	0.7
% REC--M 14-18	101	19	56	27	7.2	10	8	7.3	0.7
2400	2390	109	337	73.0	19.7	26.6	21.5	19.4	1.9
% REC--M 19-30	100	18	56	28	7.4	10	8	7.3	0.7
2600	2584	114	372	78.1	20.7	28.3	23.4	21.1	2.1
% REC--M 19-30	99	18	58	27	7.2	10	8	7.4	0.7
2800	2813	121	413	82.6	21.7	29.9	24.9	22.5	2.2
% REC--M 14-18	100	17	59	26	6.9	10	8	7.2	0.7
3000	3023	122	441	93.7	24.5	33.9	28.6	25.9	2.5
% REC--M 19-30	101	16	58	28	7.3	10	9	7.7	0.7
3200	3202	122	467	102.8	26.8	37.1	31.7	28.8	2.8
% REC--M 14-18	100	15	58	29	7.5	10	9	8.1	0.8

Table D1-17. Summary of the Nutrient Contributions of Each Food Group, Averaged Over Food Patterns at All Energy Levels.

Food group	Major contribution(s)[1]	Substantial contribution(s) (>10% of total)[2]
Fruit Group	Vitamin C	Thiamin Vitamin B_6 Folate Magnesium Copper Potassium Carbohydrate Fiber
Vegetable Group	Vitamin A Potassium	Vitamin E Vitamin C Thiamin Niacin Vitamin B_6 Folate Calcium Phosphorus Magnesium Iron Zinc Copper Carbohydrate Fiber Alpha-linolenic acid
Vegetable Subgroups: --Dark green vegetables		Vitamin A Vitamin C
--Orange vegetables	Vitamin A	
--Legumes		Folate Copper Fiber
--Starchy vegetables		Vitamin B_6 Copper
--Other vegetables		Vitamin C

Food group	Major contribution(s)	Substantial contribution(s) (>10% of total)
Grain Group	Thiamin Folate Magnesium Iron Copper Carbohydrate Fiber	Vitamin A Riboflavin Niacin Vitamin B_6 Vitamin B_{12} Calcium Phosphorus Zinc Potassium Protein Linoleic acid Alpha-linolenic acid
Grain Subgroups: --Whole grains	Folate (tie) Magnesium Iron Copper Carbohydrate (tie) Fiber	Thiamin Riboflavin Niacin Vitamin B_6 Vitamin B_{12} Phosphorus Zinc Protein
--Enriched grains	Folate (tie) Thiamin Carbohydrate (tie)	Riboflavin Niacin Iron Copper
Meat, poultry, fish, eggs, and nuts group	Niacin Vitamin B_6 Zinc Protein	Vitamin E Thiamin Riboflavin Vitamin B_{12} Phosphorus Magnesium Iron Copper Potassium Linoleic acid

Food group	Major contribution(s)	Substantial contribution(s) (>10% of total)
Milk group	Riboflavin Vitamin B_{12} Calcium Phosphorus	Vitamin A Thiamin Vitamin B_6 Magnesium Zinc Potassium Carbohydrate Protein
Oils and soft margarines	Vitamin E Linoleic acid Alpha-linolenic acid	

[1]*Major contribution* means that the food group or subgroup provides more of the nutrient than any other single food group, averaged over all calorie levels. When two food groups or subgroups provide equal amounts, it is noted as a tie.
[1]A *substantial contribution* means that the food group or subgroup provides 10% or more of the total amount of the nutrient in the food patterns, averaged over all calorie levels.

Table D1-18. Comparison of Selected Nutrients in the DASH[a] Diet, the Revised USDA Food Intake Patterns, and Nutrient Intake Recommended by the Institute of Medicine (IOM).

Nutrient[b]	DASH Diet[c] (2100 kcals)	USDA Food Intake Patterns (2000 & 2200 kcals)	IOM Recommendations RDA/AI/AMDR[d]
Protein, g	94.3	96-103	56
Protein, % kcal	18	19	10-35%
Carbohydrate, g	306	278-313	130
Carbohydrate, % kcal	58	56	45-65%
Total fat, g	63.1	60.8-67.1	-
Total fat, % kcal	27	27	20-35%
Saturated fat, g	14.4	16.4-17.8	-
Saturated fat, % kcal	6.2	7.4-7.2	ALAP[e]
Monounsaturated fat, g	25.9	22.1-24.4	-
Monounsaturated fat, % kcal	11	10	-
Polyunsaturated fat, g	18.1	18-20.1	18.6[f]
Polyunsaturated fat, % kcal	7.8	8.0	5.5 – 11%[g]
Cholesterol, mg	128	236-256	ALAP[e]
Total dietary fiber, g	30	31-35	29[h]
Potassium, mg	4538	4154-4525	4700
Sodium, mg	1150*	1900-2110	1500
Magnesium, mg	498	386-425	320
Calcium, mg	1260	1333-1376	1000
Zinc, mg	12.1	17.3-15.4	11.0
Thiamin, mg	1.7	2.1-2.3	1.2
Riboflavin, mg	2.1	2.8-2.9	1.3
Niacin, mg	24.1	22.8-26.0	16.0
Vitamin B_6, mg	2.8	2.4-2.7	1.3
Vitamin B_{12}, µg	3.8	7.9-8.4	2.4
Vitamin C, mg	300	174-181	90
Vitamin E, mg AT[i]	11.6[i]	9.0-9.7[i]	15.0[i]

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[a]DASH = Dietary Approaches to Stop Hypertension.

[b]Only nutrients analyzed in the DASH studies are included. Nutrients not analyzed but for which RDAs or AIs have been established (IOM 1997; 1998; 2000b; 2001; 2002; 2004): chromium, copper, fluoride, iodine, iron, manganese, molybdenum, phosphorus, selenium, Vitamin A, Vitamin D, Vitamin K, folate, pantothenic acid, biotin, and choline.

[c]In the DASH-Sodium trial, the average sodium intake was 1.5 g (65 mmol)as estimated by mean urinary excretion. The sodium intake of each participant was indexed to calorie level (0.9 to 1.8 g/d corresponding to 1600 to 3600 kcal/d) (Svetkey et al, 1999a).

[d]Average of recommended intake for young adult men and women; RDA = Recommended Dietary Allowance; AI = Adequate Intake; AMDR=Acceptable Macronutrient Distribution Range.

[e]As low as possible while consuming a nutritionally adequate diet.

[f]AI for men for n-3 fatty acids = 1.6 g; for n-6 fatty acids = 17 g; total = 18.6 g.

[g]n-3 fatty acids = 0.5-1.0 % of kcal; n-6 fatty acids = 5-10% of kcal.

[h]Amount listed is based on 14 g dietary fiber/1000 kcal.

[i]Vitamin E RDA is 15 mg d-α-tocopherol (AT); 1 mg ≈ 1.2 mg d-α-tocopherol equivalents (ATE). DASH diet contains 14.0 mg ATE, converted here to mg AT for comparability with AI and USDA food patterns.

*The DASH diet has been studied at several different sodium levels. The sodium level of 1150 mg corresponds to the target for the lowest level in the DASH Sodium trial. The actual level provided, based on 24-hour urinary excretaion, was 1500 mg (65 mmol).

Table D1-19. Comparison of Various Sources of Calcium, Considering Bioavailability.

Foods	Serving Size[1] (g)	Calcium Content[2] (mg/serving)	Estimated absorption Efficiency[3] (%)	Number of Servings to equal 1 cup milk	Food Amount to equal calcium in 1 cup milk	Reference
Foods without added calcium:						
Milk	240	300	32.1	1.0	1.0 cups	Nickel, 1996
Beans, pinto	86	44.7	26.7	8.1	4.1 cups	Weaver, 1993
Beans, red	172	40.5	24.4	9.7	9.7 cups	Weaver, 1993
Beans, white	110	113	21.8	3.9	2.0 cups	Weaver, 1993
Bok Choy	85	79	53.8	2.3	1.2 cups	Heaney, 1993
Broccoli	71	35	61.3	4.5	2.3 cups	Heaney, 1993
Cheddar cheese	42	303	32.1	1.0	1.5 oz	Nickel, 1996
Cheese food	42	241	32.1	1.2	1.8 oz	Nickel, 1996
Chinese Cabbage Flower leaves	85	239	39.6	1.0	0.5 cups	Weaver, 1997
Chinese Mustard green	85	212	40.2	1.1	0.6 cups	Weaver, 1997
Chinese Spinach	85	347	8.36	3.3	1.7 cups	Weaver, 1997
Kale	85	61	49.3	3.2	1.6 cups	Heaney & Weaver, 1990
Spinach	85	115	5.1	6.3	3.2 cups	Heaney, 1988
Sugar cookies	15	3	91.9	34.9	35 cookies	Weaver, 1991
Sweet Potatoes	164	44	22.2	9.8	4.9 cups	Weaver, 1997
Rhubarb	120	174	8.5	9.5	9.5 cups	Weaver, 1997
Whole wheat bread	28	20	82.0	5.8	5.8 slices	Weaver, 1991
Wheat bran cereal	28	20	38.0	12.8	12.8 oz	Weaver, 1991
Yogurt	240	300	32.1	1.0	1.0 cups	Nickel, 1993
Foods with added calcium:						
Tofu, calcium set	126	258	31.0	1.2	0.6 cups	Weaver, 1997
OJ with Ca citrate malate	240	300	36.3	0.9	0.9 cups	Heaney, 1990a
Soy milk w/ tricalcium phosphate	240	300	24.0	1.3	1.3 cups	Heaney, 2000
Bread w/ calcium sulfate	17	300	43.0	0.7	1 thin slice	Martin, 2002

[1]Based on 1/2 cup serving size (~ 85g for green leafy vegetables) except for milk and fruit punch (1 cup or 240 mL) and cheese (1.5 oz).
[2]Taken from Pennington (1989) and USDA (1989), averaged for beans and broccoli processed in different ways, except for the Chinese vegetables which were taken from Heaney, et al. (1993).
[3]Adjusted for load using the equation for milk (fractional absorption =0.889-0.0964 ln load) (Heaney et al., 1990) then adjusting for the ratio of calcium absorption of the test food relative to milk tested at the same load, the absorptive index.

Table D1-20 Nutrients* Provided by 3 Cups of 1% Milk.

Nutrient	Amount of nutrient	Amount of nutrient as percent of requirement for female ages 31-50
Calcium	871 mg	87% AI
Vitamin D (in N. America)	380 IU	38% of target goal of 1000IU
Vitamin A	425 mcg RAE	61% RDA
Phosphorous	695 mg	99% RDA
Protein	24.7	54% RDA
Potassium	1098 mg	28% AI
Magnesium	81 mg	25% RDA

*Nutrients Provided if Daily Recommended Amounts from Milk Group (3 cup equivalents) are Consumed as 3 Cups of 1% Milk

Table D1-21. Difference Between Recommended Calcium Intakes and Calcium Provided by the Food Patterns if Milk Products are Excluded.

Calorie Level	Age/sex group	Milk Group Servings	Calcium in pattern without milk group	Calcium recommendation	Calcium difference
			mg	mg	mg
1000		2	179		
	M/F 2 to 3			500	321
1200		2	241		
	M/F 4 to 8			800	559
1400		2	290		
	M/F 4 to 8			800	510
1600		3	335		
	F 9 to 13			1300	965
	F 51 to 70			1200	865
1800		3	399		
	F 31-50			1000	665
	M 9 to 13			1300	901
	F 14-18			1300	901
2000		3	415		
	F19-30			1000	585
	M 51-70			1200	785
2200		3	457		
	M 31-50			1000	543
	M 14-18			1300	843
2400		3	490		
	M 19-30			1000	510
2600		3	543		
	M 19-30			1000	457
2800		3	588		
	M 14-18			1300	712
3000		3	603		
	M 19-30			1000	397
3200		3	604		
	M 14-18			1300	696

Table D1-22. Food Sources of Iron.

Table D1-22a. Food sources of iron ranked by milligrams of iron per standard amount; also calories in the standard amount. (All are ≥10% of RDA for teen and adult females, which is 18 mg.)

Food, Standard Amount	Iron (mg)[1]	Calories
Clams, canned, drained, 3 ounces	23.8	126
Fortified ready-to-eat cereals (various), ¾ to 1-1/3 cup	4.2 – 18.1	74 – 120
Oysters, eastern, wild, cooked, moist heat, 3 ounces	10.2	116
Organ meats (liver, giblets), various, cooked, 3 ounces	5.2 – 9.9	134 – 276
Fortifed instant cooked cereals (various), 1 packet	4.9 – 8.1	Varies
Turkey giblets, cooked, 3 ounces	6.6	169
Soybeans, mature, cooked, ½ cup	4.4	149
Pumpkin & squash seed kernels, roasted, 1 ounce	4.2	148
Sesame seeds, roasted and toasted, 1 ounce	4.2	160
White beans, canned, ½ cup	3.9	153
Blackstrap molasses, 1 tablespoon	3.5	47
Lentils, cooked, ½ cup	3.3	115
Spinach, cooked from fresh, ½ cup	3.2	21
Beef, chuck, blade roast, lean, cooked, 3 ounces	3.1	215
Beef, bottom round, lean, 0" fat, all grades, cooked, 3 ounces	2.9	173
Beef, top sirloin, lean, 0" fat, all grades, cooked, 3 ounces	2.9	162
Kidney beans, cooked, ½ cup	2.6	112
Sardines, canned in oil, drained, 3 ounces	2.5	177
Beef, rib, lean, ¼" fat, all grades, 3 ounces	2.4	195
Chickpeas, cooked, ½ cup	2.4	134
Duck, meat only, roasted, 3 ounces	2.3	171
Lamb, shoulder, arm, lean, ¼" fat, choice, cooked, 3 ounces	2.3	237
Navy beans, cooked, ½ cup	2.3	129
Prune juice, ¾ cup	2.3	136

Table D1-22b. Food sources of iron as consumed by Americans[2] (Percent of total consumption, CSFII, 1994-1996)

Food	Percent of total[3]
Ready-to-eat cereal	16.9
Yeast bread	13.1
Beef	8.5
Cakes/cookies/quick breads/doughnuts	4.2
Pasta	3.7
Flour/baking ingredients	3.2
Dried beans/lentils	3.1
Poultry	3.0
Potatoes (white)	2.6
Hot breakfast cereal	2.4
Rice/cooked grains	2.4
Tomatoes	2.4
Fish/shellfish (excluding canned tuna)	2.0

Table D1-22, cont'd. Food Sources of Iron.

Food, Standard Amount	Iron (mg)[1]	Calories
Shrimp, canned, 3 ounces	2.3	102
Cowpeas, cooked, ½ cup	2.2	100
Ground beef, 15% fat, cooked, 3 ounces	2.2	212
Lima beans, cooked, ½ cup	2.2	108
Soybeans, green, cooked, ½ cup	2.2	127
Tomato puree, ½ cup	2.2	48
Refried beans, ½ cup	2.1	118
Tomato paste, ¼ cup	2.0	54

[1]Source: ARS Nutrient Database for Standard Reference, Release 16-1. Mixed dishes and multiple preparations of the same food item have been omitted.
[2]Source: Cotton et al. 2004. Data are for persons aged 19 years and older, Day 1 intakes
[3] Food groups (n=8) contributing at least 1% in descending order: eggs, crackers/pretzels, meal replacements/protein supplements, tortillas/tacos, potato chips/corn chips/popcorn, orange/grapefruit juice, pancakes/waffles/French toast, and coffee.

Table D1-23. Serum 25-hydroxyvitamin D Values by Seasonal Subpopulation in the Contiguous U.S.

Latitude and season / Age (y)	n	Mean	Serum 25-hydroxyvitamin D (nmol/L) <25 %	<25 95% CI	<37.5 %	<37.5 95% CI	<50 %	<50 95% CI	<62.5 %	<62.5 95% CI
(A) Winter/lower latitude subpopulation (November–March, median latitude 32°N, range 25°–41°N)										
Male										
12–19	625	78.6	1[a]	0, 2.2	5	2.4, 8.0	13	7.7, 17.4	25	17, 32
20–39	1289	69.1	2	1.1, 3.3	12	9.2, 15.0	26	21.1, 29.9	43	37, 49
40–59	864	70.6	2[a]	0.6, 3.1	9	5.8, 11.9	22	16.6, 26.8	39	32, 46
60–79	827	72.5	1	0.2, 2.2	7	4.4, 10.2	18	12.7, 22.3	38	31, 46
80+	204	68.7	3[a]	0, 6.3	12	4.3, 18.8	26	14.7, 37.6	47	31, 62
Female										
12–19	699	64.9	4	2.0, 5.9	12	7.8, 16.3	29	22.8, 34.5	47	39, 55
20–39	1459	62.7	5	3.4, 6.4	19	15.6, 22.7	40	35.4, 44.2	55	50, 61
40–59	959	61.6	3	1.8, 5.0	17	13.2, 21.7	39	33.2, 44.0	57	50, 63
60–79	757	63.5	5	2.5, 6.6	15	10.9, 20.0	36	30.1, 42.0	52	45, 59
80+	208	59.6	5	1.1, 9.7	18	8.5, 27.3	37	25.2, 48.4	56	42, 69
(B) Summer/higher latitude subpopulation (April–October, median latitude 39°N, range 25°–47°N)										
Male										
12–19	741	89.5	< 1[a]	—	2[a]	0.7, 3.0	8	5.2, 11.0	21	15.8, 25.4
20–39	1621	85.3	< 1[a]	—	3	1.8, 3.9	11	8.6, 13.1	24	20.1, 27.0
40–59	1122	78.8	1	0.5, 1.7	5	3.2, 6.3	14	11.3, 17.3	29	24.6, 33.3
60–79	1072	76.8	< 1[a]	—	4	2.7, 5.7	14	11.2, 17.3	32	27.7, 37.0
80+	349	69.5	1[a]	0, 2.5	7	4.0, 10.8	19	12.8, 24.9	37	28.9, 45.7
Female										
12–19	844	80.5	< 1[a]	—	6	3.4, 7.9	13	9.5, 17.0	28	22.4, 34.1
20–39	1964	81.6	2	1.0, 2.4	8	5.9, 9.2	18	14.8, 20.3	30	26.1, 33.9
40–59	1264	68.6	2	0.9, 2.7	10	7.9, 12.6	26	22.3, 30.3	45	40.1, 50.6
60–79	1200	65.6	2	1.1, 3.1	10	7.8, 12.6	29	24.6, 33.0	49	43.5, 54.4
80+	394	61.8	3[a]	0.8, 4.7	12	7.4, 16.6	34	26.7, 42.3	58	49.0, 67.9

CI = Confidence Interval

Source: Looker et al., 2002

Table D1-24. Food Sources of Vitamin D.

Food item	µg vitamin D	IU vitamin D
Fish	5-15/100 g	200-600/100 g
Fortified milk	2.5/cup	100/cup
Vitamin D fortified juice	2.5/cup	100/cup
Vitamin D fortified cereals	1 - 1.5/cup	40 - 60/cup
Vitamin D fortified breakfast bars	2.5/bar	100/bar

Source: Raiten DJ and MF Picciano (Co-chairs). Vitamin D and Health in the 21st Century: Bone and Beyond. A conference conducting by the National Institutes of Health in Bethesda, Maryland on October 9-10, 2003. Accessed at: http://www.nichd.nih.gov/prip/ on 2 August 2004.