APPENDIX E-3.6
MILK GROUP AND ALTERNATIVES: FOOD PATTERN MODELING ANALYSIS

RESEARCH QUESTIONS

- What is the impact on nutrient adequacy if no milk or milk products are consumed?
- What is the impact on nutrient adequacy if calcium is obtained from non-dairy. sources or fortified foods rather than milk or milk products?
- What non-dairy calcium sources or fortified foods are the most feasible alternatives to milk products for those who choose not to consume dairy foods.
- How would the nutrients provided by the milk group be changed if more low-fat or fat-free fluid milk and less cheese were consumed?

BACKGROUND

(Note: Please see Appendix E-3.1 *Adequacy of USDA Food Patterns* for more background information about development of the base USDA food patterns.)

The USDA food patterns are designed to meet the known nutrient needs of the age/gender groups for which they are targeted within calorie constraints. The patterns include recommended amounts to eat from five major food groups, one of which is the Milk Group. The Milk Group includes fluid milks, cheeses, yogurt, and other foods that contain these dairy products, such as milk-based meal replacements and ice creams. Traditionally, the Milk Group has been identified as a separate food group because it is the primary source of calcium, a nutrient that is low in American diets. In addition, milk and milk products are a major source of other shortfall nutrients, including magnesium, potassium, vitamin A, and vitamin D. In the U.S., only 36% of individuals 1 year and over have calcium intakes at or above the Adequate Intake (AI), and only 31% have intakes of vitamin D at or above the AI (Moshfegh et al., 2009). According to food supply data, 70 percent of the calcium consumed by Americans is from milk and milk products.

Over time, the mix of products consumed within the milk group has shifted, with less fluid milk and more cheese being consumed. Much of the increase in cheese consumption has come from mixed dishes including cheese, such as pizza and Mexican dishes. The nutrient content of cheese differs somewhat from that of milk. Therefore, the USDA food patterns have created a nutrient profile for the milk group that contains cheese and yogurt in addition to milk, to reflect the nutrients that would be obtained from consuming a typical mix of foods from this group, in nutrient-dense forms.

The USDA food patterns include 3 cup equivalents of milk and milk products per day in patterns that are targeted to preteens, teens, and adults. Nonetheless, for various reasons, some individuals do not consume milk and milk products. Therefore, the 2005 Dietary Guidelines for Americans (p. 9) noted:

> "Since milk and milk products provide more than 70 percent of the calcium consumed by Americans, guidance on other choices of dietary calcium is needed for those who do not consume the recommended amount of milk products…People may avoid milk products because of allergies, cultural practices, taste, or other reasons. Those who avoid all milk products need to choose rich sources of the nutrients provided by milk...The bioavailability of the calcium in [non-dairy sources of calcium] varies."
>
> "Those who avoid milk because of its lactose content may obtain all the nutrients provided by the milk group by using lactose-reduced or low-lactose milk products, taking small servings of milk several times a day, taking the enzyme lactase before consuming milk products, or eating other calcium-rich foods."

This analysis was conducted to examine the nutritional consequences of not consuming milk and milk products, to explore possible food alternatives to fill the nutrient gaps left in the diet if milk and milk products are not consumed, and to examine any potential benefits of suggestions about amounts to consume within the Milk Group from fluid milk or cheese.

METHODS

For each nutrient assessed in the food patterns, identified the amounts and proportions of the nutrient contributed by the milk group in the current patterns.

1. Removed milk group recommended intakes from the patterns and identified the nutrients that were less than goal amounts at each calorie level.

2. Identified the amount of non-dairy food sources of calcium or fortified foods that would be needed to bring calcium to adequate amounts, and identified their other nutrient contributions if used as alternatives to milk.

3. Calculated changes in nutrient levels in each pattern, and the most feasible ways to compensate through alternative food selections, without exceeding the caloric level of the pattern, if no milk or milk products were consumed.

4. Identified changes in the nutrients provided by the milk group with varying proportions of low fat or fat-free fluid milk and cheese:

    a. Current intake proportions (approximately 52% fluid milk, 45% cheese)
    b. All fluid fat-free milk
    c. 2 cup equivalents fluid fat-free milk and 1 cup equivalent lowfat cheese (67%, 33%)

RESULTS

Nutrient Contribution of Milk Group in USDA Food Patterns

The USDA food patterns at 1600 to 3200 calories include 3 cup equivalents from the Milk Group, which contributes 8 to 15 percent of the calories in the food patterns. As shown in Table 1 and Table A1, the Milk Group is a proportionately greater contributor to levels of protein, calcium, magnesium, phosphorus, potassium, zinc, selenium, vitamin A, vitamin D, riboflavin, vitamin B-12, and choline than to calories in the food patterns. In the 2000 calorie pattern, the Milk Group contributes only 12 percent of the calories, but over 70 percent of the calcium and vitamin D; 30 to 40 percent of the phosphorus, vitamin A, riboflavin, and vitamin B-12; and 20 to 30 percent of the protein, potassium, zinc, and choline.

Table 1. Amount and Proportion of Selected Nutrients in USDA Food Patterns Contributed by the Milk Group

Nutrient	Amount in 1600 to 3200 Calorie Patterns[1]	Proportion of Total Nutrient Content from Milk Group 2000 Calorie Pattern	Proportion of Total Nutrient Content from Milk Group All Patterns[2]
Energy	244 kcal	12%	8 – 15%
Macronutrients			
Protein	25.6 g	28%	21 – 31%
Total Lipid (Fat)	4.4 g	6%	4 – 8%
Carbohydrate	25.8 g	10%	6 – 13%
Minerals			
Calcium	893 mg	72%	62 – 75%
Iron	0.3 mg	2%	1 – 2%
Magnesium	60 mg	17%	12 – 19%
Phosphorus	683 mg	40%	31 – 44%
Potassium	710 mg	20%	15 – 24%
Sodium	542 mg	31%	23 – 35%
Zinc	3.4 mg	23%	17 – 25%
Vitamins			
Vitamin A	298 µg RAE	35%	26 – 39%
Vitamin E	0.1 mg AT	2%	1 – 2%
Vitamin D	187 IU	72%	64 – 75%
Riboflavin	0.9 mg	40%	31 – 44%
Vitamin B-12	2.6 µg	39%	32 – 42%
Choline	75 mg	22%	17 – 25%
Fats and Fatty Acids			
Cholesterol	26 mg	11%	9 – 13%
Saturated Fatty Acids	2.6 g	14%	8 – 19%
Monounsaturated Fatty Acids	1.2 g	4%	3 – 6%
Polyunsaturated Fatty Acids	0.2 g	1%	1%

[1]Patterns with 1600 to 3200 calories include 3 cup equivalents from the Milk Group.
[2]Range of the proportion of each nutrient from the ilk group in patterns from 1000 to 3200 calories.
Data sources: NHANES 2003-2004 and NDB-SR22.

Appendix Tables A2 and A3 show nutrient levels as actual amounts and percent of nutrient goals in the base USDA food patterns and patterns from which the Milk Group has been removed. Results are summarized in Table 2 for selected patterns.

Table 2. Comparison of Selected Nutrient Levels in Food Patterns at Selected Calorie Levels with Milk Group Included (3c Milk) and Excluded (0c Milk)

Pattern Calorie Level and Target Age/Sex Group with and without Milk Group	1600 kcal F 51-70 3c Milk	1600 kcal F 51-70 0c Milk	2000 kcal F 19-30 3c Milk	2000 kcal F 19-30 0c Milk	2400 kcal M 19-30 3c Milk	2400 kcal M 19-30 0c Milk
Macronutrients						
Protein, grams	83 g	57 g	91 g	66 g	106 g	80 g
Protein, % of RDA	180%	124%	198%	143%	189%	143%
Protein, % of calories	20.7%	16.8%	18.2%	15.1%	17.8%	15.0%
Total Lipid, grams	55 g	50 g	71 g	67 g	86 g	81 g
Total Lipid, % of calories	30.9%	33.2%	32.0%	34.4%	32.5%	34.1%
Carbohydrate, grams	203 g	178 g	260 g	234 g	312 g	286 g
Carbohydrate % of RDA	157%	137%	200%	180%	240%	220%
Carbohydrate, % of calories	50.7%	52.5%	52.1%	53.4%	52.3%	53.5%
Minerals						
Calcium, mg	1184 mg	291 mg	1235 mg	342 mg	1323 mg	430 mg
Calcium, % of AI	99%	24%	124%	34%	132%	43%
Iron, mg	15 mg	14 mg	17 mg	17 mg	21 mg	21 mg
Iron, % of RDA	182%	178%	94%	92%	266%	263%
Magnesium, mg	310 mg	250 mg	351 mg	291 mg	418 mg	358 mg
Magnesium, % of RDA	97%	78%	113%	94%	104%	89%
Phosphorus, mg	1562 mg	879 mg	1690 mg	1007 mg	1932 mg	1249 mg
Phosphorus, % of RDA	223%	126%	241%	144%	276%	178%
Potassium,mg	2971 mg	2261 mg	3478 mg	2768 mg	3945 mg	3235 mg
Potassium, % of AI	63%	48%	74%	59%	84%	69%
Sodium, mg	1527 mg	985 mg	1722 mg	1181 mg	2028 mg	1487 mg
Sodium, % of UL	66%	43%	75%	51%	88%	65%
Zinc, mg	13 mg	10 mg	14 mg	11 mg	17 mg	14 mg
Zinc, % of RDA	166%	124%	179%	137%	155%	125%
Vitamins						
Vitamin A, µg RAE	756 µg	458 µg	851 µg	554 µg	969 µg	671 µg
Vitamin A, % of RDA	108%	65%	122%	79%	108%	75%
Vitamin D, IU	249 IU	63 IU	258 IU	71 IU	275 IU	88 IU
Vitamin D, % of AI	62%	16%	129%	36%	137%	44%
Riboflavin, mg	2.0 mg	1.1 mg	2.2 mg	1.3 mg	2.6 mg	1.7 mg
Riboflavin, % of RDA	185%	103%	203%	122%	197%	128%
Vitamin B-12, µg	6.1 µg	3.6 µg	6.5 µg	4.0 µg	7.4 µg	4.8 µg
Vitamin B-12, % of RDA	256%	149%	272%	165%	308%	201%
Choline, mg	304 mg	230 mg	340 mg	265 mg	391 mg	317 mg
Choline, % of AI	72%	54%	80%	62%	71%	58%
Fats and Fatty Acids						
Cholesterol, mg	206 mg	180 mg	229 mg	203 mg	268 mg	242 mg
Cholesterol, % of limit	69%	60%	76%	68%	89%	81%
Saturated Fatty Acids, g	14.0 g	11.4 g	18.7 g	16.1 g	22.5 g	19.8 g
SFA, % of calories	7.9%	7.5%	8.4%	8.3%	8.5%	8.3%
Monounsaturated Fatty Acids, g	20.0 g	18.8 g	26.1 g	24.9 g	31.4 g	30.3 g
MUFA, % of calories	11.2%	12.4%	11.8%	12.8%	11.9%	12.7%
Polyunsaturated Fatty Acids, g	16.4 g	16.1 g	20.9 g	20.7 g	25.0 g	24.7 g
PUFA, % of calories	9.2%	10.6%	9.4%	10.6%	9.4%	10.3%

Data sources: NHANES 2003-2004 and NDB-SR22.

When the Milk Group is removed, levels of calcium, magnesium, phosphorus, vitamin A, and vitamin D drop below 100 percent of goals in some or all patterns. In addition, levels of potassium and choline, which are below goals in the base patterns, drop substantially lower in patterns with no Milk Group. Shortfalls relative to goals when the Milk Group is removed are largest for calcium, vitamin D, potassium, and choline. For females 19 to 30 years old, the base 2000 calorie pattern provides over 120 percent of the goals for calcium and vitamin D, but when the Milk Group is removed, the pattern provides only 34 percent and 36 percent, respectively, of the AIs for those nutrients. In addition, potassium and choline drop from over 70 percent of AIs to 59 and 62 percent, respectively. Effects of removing the Milk Group are especially notable on calcium levels for preteens, teen girls, and older adults, on vitamins A and D levels for older adults, on potassium levels for preteens, females of all ages, and older men, and on magnesium levels for older men.

Non-dairy alternatives to milk

A number of non-dairy calcium sources were listed in the 2005 Dietary Guidelines for Americans as potential alternatives to milk and other dairy foods. The nutrient levels in these foods were examined for all nutrients provided in substantial amounts by the milk group. Their nutrient levels were considered in two ways: First, the amounts of these nutrients in a standard amount of the food, such as 1 cup, ½ cup, or 3 ounces, which can be considered to be a typical portion size
(Table 3). Second, the amounts of the foods that provided 300 mg of calcium, the amount in 1 cup equivalent from the milk group, were calculated and levels of the other nutrients identified (Table 4).

Non-dairy foods that provide a similar amount of calcium to milk within a typical portion size include calcium-fortified soymilk, calcium-fortified rice drink, calcium-fortified orange juice, and canned sardines with bones. All of these provide ample amounts of magnesium in comparison to milk. Soymilk and rice drinks that are fortified with vitamins A and D, in addition to calcium, also provide ample amounts of those nutrients. Soymilk also provides ample potassium and somewhat less protein than milk, but rice drink is low in both. Fortified orange juice and sardines also provide potassium and vitamin D, but much less vitamin A. Some types of tofu provide calcium in amounts similar to milk, but the amount of calcium varies widely based on the firmness of the product and the salt (e.g., calcium sulfate or magnesium chloride) used to precipitate the tofu. All tofu provides at least some protein and potassium, but not vitamins A or D. In addition, all of the potential milk group alternatives contain more calories than fat-free milk in a common portion except the unsweetened soymilk, soft tofu, and dark green leaves.

The second way in which these nondairy calcium alternatives were considered was in a portion that contained about 300 mg of calcium (Table 4). Amounts of soymilk, rice drink, and orange juice had similar amounts of calcium to milk in a portion size of 1 cup or less. The portion of tofu made with calcium sulfate was about 1/3 cup, sardines and salmon about 3 to 4 ounces, and cooked dark green vegetables from about 1 cup up to 5 cups. Almonds and white beans also had relatively large portion sizes. All of the alternatives except for unsweetened soymilk, tofu made with calcium sulfate, orange juice, and the dark green leafy vegetables had energy content

greater than that for fat-free milk in portions with similar calcium content. Vitamin D amounts were low in all alternatives except the fish with bones and vitamin D-fortified products. Vitamin A was low in all but the dark green vegetables and the vitamin A-fortified products. Potassium was equal to or higher than the amount in milk in all but the rice drink and some tofu.

Table 3. Calcium and Selected Other Nutrients in Standard Amounts of Non-Dairy Calcium Sources

Calcium alternative	Amount	Energy kcal	Protein g	Calcium mg	Magne-sium mg	Potassium mg	Vitamin A, µg RAE	Vitamin D, IU
Milk Group Profile	1 cup eq	80	8.50	297	20	227	96	58
Soymilk, unsweetened, fortified with calcium, vitamin A, and vitamin D	1 cup	80	6.95	301	39	292	134	119
Soymilk, chocolate, light, fortified with calcium, vitamin A, and vitamin D	1 cup	114	5.10	299	36	350	148	114
Rice Drink, unsweetened, fortified with calcium, vitamin A, and vitamin D	1 cup	113	0.67	283	26	65	151	101
Tofu, raw, regular, prepared with calcium sulfate	1/2 cup	94	10.02	434	37	150	3	0
Tofu, soft "silken", prepared with calcium chloride	1/2 cup	68	5.95	38	36	223	0	0
Tofu, extra firm, prepared with nigari (MgCl)	1/2 cup	114	12.36	219	66	165	0	0
Tofu, firm, prepared with nigari (MgCl) and calcium sulfate	1/2 cup	88	10.32	253	47	186	0	0
Orange Juice, fortified with calcium and vitamin D	1 cup	117	1.69	500	27	443	5	137
Collards, frozen	1/2 cup	31	2.52	179	26	213	489	0
Spinach, frozen	1/2 cup	32	3.81	145	78	287	573	0
Kale, frozen	1/2 cup	20	1.85	90	12	209	478	0
Broccoli, frozen	1/2 cup	26	2.85	30	12	131	47	0
Soybeans, green	1/2 cup	127	11.12	131	54	485	7	0
White beans, canned	1/2 cup	149	9.51	96	67	595	0	0
Almonds, dry roasted	1 oz	169	6.26	75	81	211	0	0
Sardines, canned, w/bone	3 oz	177	20.94	325	33	338	27	164
Salmon, canned, w/bone	3 oz	116	19.62	235	29	264	20	396

Data Source: USDA National Nutrient Database for Standard Reference, Release 22.

Considering that 3 cup equivalents from the milk group are recommended for all individuals 9 and older, the amount of many potential alternatives to provide sufficient calcium would provide too many calories and/or be a large amount to consume daily. In addition, the question of bioavailability of the calcium in vegetable products has not been addressed and could pose a concern. However, there are several calcium- and vitamin D-fortified beverages that may be suitable alternatives to milk. Of these, the product most similar to milk is calcium–fortified soymilk. In fact, this product has already been identified as part of the milk group. Calcium-fortified rice drink and orange juice

are also alternatives to consider for calcium and some other nutrients, but they differ from milk in some potentially important nutrients. Tofu made with calcium sulfate is also an option that offers many of the nutrients in milk, but not vitamins A or D. While it would not be typical for most American to consume sufficient sardines or canned salmon with bones on a regular basis to provide all the calcium needed, they do offer the advantage of also providing vitamin D in ample amounts. Some consumers could replace milk with a combination of these alternatives, for example, selecting a combination of calcium-fortified orange juice, collard greens, and canned salmon with bones.

Table 4. Amount of Non-Dairy Calcium Sources with Calcium Equivalent to 1 Cup Milk and Amount of Selected Other Nutrients in that Amount

Calcium alternative	Amount	Energy kcal	Protein g	Calcium mg	Magne-sium mg	Potassium mg	Vitamin A, µg RAE	Vitamin D, IU
Milk Group Profile	1 cup eq.	80	8.50	297	20	227	96	58
Soymilk, unsweetened, fortified with calcium, vitamin A, and vitamin D	1 cup	80	6.95	301	39	292	134	119
Soymilk, chocolate, light, fortified with calcium, vitamin A, and vitamin D	1 cup	114	5.10	299	36	350	148	114
Rice Drink, unsweetened, fortified with calcium, vitamin A, and vitamin D	1 cup	113	0.67	283	26	65	151	101
Tofu, raw, regular, prepared with calcium sulfate	~1/3 cup	65	6.87	298	26	103	3	0
Tofu, soft "silken", prepared with calcium chloride	>2 lbs	533	46.51	300	281	1744	0	0
Tofu, extra firm, prepared with nigari (MgCl)	~2/3 cup	156	16.91	299	91	226	0	0
Tofu, firm, prepared with nigari (MgCl) and calcium sulfate	~5/8 cup	105	12.29	302	56	222	0	0
Orange Juice, fortified with calcium and vitamin D	0.6 cup	70	1.02	300	16	266	3	82
Collards, frozen	~7/8 cup	51	4.25	300	43	359	822	0
Spinach, frozen	1 cup	65	7.62	291	156	574	1146	0
Kale, frozen	1-2/3 cup	65	6.17	300	39	697	1596	0
Broccoli, frozen	5 cup	258	28.52	304	120	1306	469	0
Soybeans, green	1.1 cup	279	24.45	287	119	1067	16	0
White beans, canned	1.6 cup	478	30.43	306	214	1903	0	0
Almonds, dry roasted	4 oz	677	25.05	302	324	846	0	0
Sardines, canned, w/bone	2.8 oz	165	19.54	303	31	315	25	153
Salmon, canned, w/bone	3.8 oz	147	24.93	299	37	336	25	503

Data Source: USDA National Nutrient Database for Standard Reference, Release 22.

Effect of altering the composition of the Milk Group to include more milk and less cheese

The Milk Group in current patterns is composed of nutrient-dense forms of milk, yogurt, and cheese in the same relative proportions as they appear in the average American diet: 52 percent milk, 45 percent cheese, and 1-2 percent yogurt. On a cup equivalent basis, milk is richer than cheese in a number of nutrients for which the Milk Group is an important contributor. Thus, this analysis explored the effect on nutrient levels in the food patterns of increasing the proportion of milk relative to cheese. Current patterns were compared to patterns with the Milk Group composed solely of fat-free milk and to patterns containing 2 cup equivalents of fat-free milk and 1 cup equivalent of lowfat cheese – a two-thirds/one-third split (Table 5 and Tables A4 and A5). Increasing the proportion of fat-free milk consumed to meet Milk Group recommendations would increase levels of magnesium, potassium, vitamin A, vitamin D, and choline in the food patterns, and decrease amounts of sodium, cholesterol and saturated fatty acids. It especially boosts levels of potassium and vitamin D, nutrients that are below intake goals in many food patterns.

Table 5. Comparison of Selected Nutrient Levels (% of Goal or Limit and % of Calories) in 2000 Calorie Food Patterns with Different Milk Group Compositions

Pattern and Target Age/Sex Group	Base Pattern[1] M 51-70	M67-C33[2] M 51-70	Milk Only[3] M 51-70	Base Pattern[1] F 19-30	M67-C33[2] F 19-30	Milk Only[3] F 19-30
Nutrient (% Goal or Limit)						
Energy (2000 kcal)	100%	99%	100%	100%	99%	100%
Protein (≥ RDA)	163%	162%	161%	198%	197%	196%
Calcium (≥ AI)	103%	103%	103%	124%	123%	124%
Magnesium (≥ RDA)	83%	84%	88%	113%	114%	120%
Potassium ≥ AI)	74%	76%	83%	74%	76%	83%
Vitamin A (≥ RDA)	95%	99%	111%	122%	127%	143%
Vitamin D (≥ RDA)	64%	76%	104%	129%	152%	208%
Choline (≥ AI)	62%	63%	69%	80%	82%	89%
Sodium (< UL)	75%	73%	65%	75%	73%	65%
Cholesterol (<300 mg/day)	76%	75%	73%	76%	75%	73%
Nutrient (% of calories)						
Protein	18.2% kcal	18.4% kcal	18.0% kcal	18.2% kcal	18.4% kcal	18.0% kcal
Carbohydrate	52.1% kcal	52.3% kcal	53.9% kcal	52.1% kcal	52.3% kcal	53.9% kcal
Total Lipid	32.0% kcal	31.8% kcal	30.1% kcal	32.0% kcal	31.8% kcal	30.1% kcal
Saturated Fatty Acids	8.4% kcal	8.1% kcal	7.4% kcal	8.4% kcal	8.1% kcal	7.4% kcal

[1] Base Pattern Milk Group composition is 52% fat-free milk, 45% lowfat cheese, and 1-2% nonfat yogurt.
[2] M67-C33 Milk Group composition is 67% fat-free milk and 33% lowfat cheese.
[3] Milk Only Milk Group composition is 100% fat-free milk.
Data sources: NHANES 2003-2004 and NDB-SR22.

SUMMARY

The Milk Group is a key contributor of calcium, vitamin D, phosphorus, vitamin A, riboflavin, vitamin B-12, potassium, and choline in the food patterns. If no milk products or alternative choices are consumed, calcium, magnesium, phosphorus, vitamin A, vitamin D, potassium, and choline are negatively impacted. Shortfalls relative to goals are largest for calcium, vitamin D, potassium, and choline. The alternative to milk and milk products that provides the most similar

nutrient profile in terms of these impacted nutrients is soymilk fortified with calcium, vitamin A, and vitamin D. Other alternative choices could be selected, especially in combinations that together provide the range of nutrients needed. While all foods in the milk group provide calcium and the other nutrients of interest, some tend to have lower levels of desired nutrients and/or higher levels of sodium and saturated fat. Selecting more of the recommended 3 cups per day from fluid lowfat or fat-free milk than the current proportions consumed would provide more potassium, vitamin A, vitamin D, and choline in the patterns, and decrease amounts of sodium, cholesterol and saturated fatty acids.

REFERENCES

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Appendices

Appendix A

Table A1. Percentage Contribution of Milk Group to Nutritive Value of USDA Food Patterns[1] (Percent of total amount of nutrient in each pattern that is from the Milk Group)

Calorie level of Pattern	1600	1800	2000	2200	2400	2600	2800	3000	3200
Nutrient									
Energy	15%	14%	12%	11%	10%	9%	9%	8%	8%
Protein	31%	29%	28%	26%	24%	23%	22%	21%	21%
Total lipid	8%	7%	6%	6%	5%	5%	4%	4%	4%
Carbohydrate	13%	11%	10%	9%	8%	8%	7%	7%	6%
Fiber, total dietary	2%	2%	2%	1%	1%	1%	1%	1%	1%
Calcium	75%	73%	72%	69%	67%	65%	63%	62%	62%
Iron	2%	2%	2%	2%	1%	1%	1%	1%	1%
Magnesium	19%	18%	17%	15%	14%	13%	12%	12%	12%
Phosphorus	44%	42%	40%	37%	35%	33%	32%	31%	31%
Potassium	24%	22%	20%	19%	18%	17%	16%	15%	15%
Sodium	35%	33%	31%	29%	27%	25%	24%	23%	23%
Zinc	25%	24%	23%	21%	20%	18%	17%	17%	17%
Copper	7%	6%	6%	5%	5%	4%	4%	4%	4%
Manganese	1%	0%	0%	0%	0%	0%	0%	0%	0%
Selenium	21%	19%	19%	17%	15%	15%	14%	14%	14%
Vitamin A	39%	36%	35%	32%	31%	28%	27%	26%	26%
Vitamin E	2%	2%	2%	1%	1%	1%	1%	1%	1%
Vitamin D	75%	74%	72%	70%	68%	67%	65%	65%	64%
Vitamin C	0%	0%	0%	0%	0%	0%	0%	0%	0%
Thiamin	13%	12%	11%	10%	9%	8%	8%	8%	8%
Riboflavin	44%	41%	40%	37%	35%	33%	31%	31%	31%
Niacin	2%	2%	2%	2%	2%	1%	1%	1%	1%
Vitamin B-6	9%	9%	8%	7%	7%	6%	6%	6%	6%
Vitamin B-12	42%	41%	39%	37%	35%	34%	32%	32%	32%
Choline	25%	23%	22%	20%	19%	18%	17%	17%	17%
Vitamin K	1%	1%	1%	1%	1%	0%	0%	0%	0%
Folate	5%	4%	4%	4%	3%	3%	3%	3%	3%
Cholesterol	13%	13%	11%	11%	10%	10%	9%	9%	9%
Saturated fatty acids	19%	17%	14%	13%	12%	11%	10%	9%	8%
Monounsaturated fatty acids	6%	5%	4%	4%	4%	3%	3%	3%	3%
Polyunsaturated fatty acids	1%	1%	1%	1%	1%	1%	1%	1%	1%

[1]All patterns listed include 3 cup equivalents from the Milk Group.

Table A2. Nutrient Levels in USDA Food Patterns with Milk Group Removed, Compared to Patterns with Three Cup Equivalents from the Milk Group

Calorie Level	Milk Group Cup Equivalents	Energy kcal	Protein g	Total lipid g	Carbo-hydrate g	Dietary Fiber g	Calcium mg	Iron mg	Magnes-ium mg	Phos-phorus mg	Potassium mg	Sodium mg
1600	0	1357	57	50	178	24	291	14	250	879	2261	985
1600	3	1602	83	55	203	25	1184	15	310	1562	2971	1527
1800	0	1553	62	57	208	27	328	16	276	960	2561	1124
1800	3	1797	87	61	234	28	1221	16	336	1643	3272	1666
2000	0	1752	66	67	234	29	342	17	291	1007	2768	1181
2000	3	1997	91	71	260	30	1235	17	351	1690	3478	1722
2200	0	1946	74	73	261	33	397	19	334	1152	3126	1342
2200	3	2190	100	77	287	34	1290	20	394	1836	3836	1883
2400	0	2139	80	81	286	35	430	21	358	1249	3235	1487
2400	3	2384	106	86	312	37	1323	21	418	1932	3945	2028
2600	0	2339	85	88	317	40	481	23	397	1362	3565	1611
2600	3	2583	111	92	343	41	1374	24	457	2046	4275	2153
2800	0	2550	92	94	350	43	523	25	431	1473	3834	1755
2800	3	2795	118	99	376	44	1416	26	491	2156	4544	2296
3000	0	2741	94	106	370	46	541	26	449	1520	4070	1788
3000	3	2985	120	111	396	47	1434	26	509	2203	4780	2329
3200	0	2938	94	122	387	47	542	26	449	1521	4071	1811
3200	3	3182	120	126	412	48	1435	26	509	2204	4781	2353

Table A2. Nutrient Levels in USDA Food Patterns with Milk Group Removed, Compared to Patterns with Three Cup Equivalents from the Milk Group— continued

Calorie Level	Milk Group Cup Equivalents	Zinc mg	Copper mg	Man-ganese mg	Selenium mcg	Vitamin A mcg_RAE	Vitamin E mg AT	Vitamin D IU	Vitamin C mg
1600	0	10	1.130	3	75	458	6.6	63	100
1600	3	13	1.212	3	95	756	6.7	249	100
1800	0	10	1.293	4	82	522	7.4	65	107
1800	3	14	1.376	4	101	820	7.6	252	108
2000	0	11	1.363	4	86	554	8.2	71	126
2000	3	14	1.446	4	106	851	8.3	258	126
2200	0	13	1.552	4	97	632	9.0	79	137
2200	3	16	1.635	4	117	930	9.1	266	137
2400	0	14	1.645	5	107	671	9.5	88	138
2400	3	17	1.727	5	127	969	9.6	275	138
2600	0	15	1.817	5	114	758	10.5	92	149
2600	3	18	1.900	5	134	1056	10.6	279	149
2800	0	16	1.954	6	125	800	11.1	101	168
2800	3	19	2.037	6	144	1098	11.2	287	168
3000	0	16	2.050	6	126	835	12.4	102	175
3000	3	20	2.132	6	145	1133	12.5	289	175
3200	0	16	2.050	6	126	862	13.4	106	175
3200	3	20	2.132	6	145	1160	13.5	293	175

Table A2. Nutrient Levels in USDA Food Patterns with Milk Group Removed, Compared to Patterns with Three Cup Equivalents from the Milk Group—continued

Calorie Level	Milk Group Cup Equivalents	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Vitamin B-12 mcg	Choline mg	Vitamin K mcg	Folate mcg DFE	Cholesterol mg
1600	0	1.3	1.1	19.3	1.8	3.6	230	124	507	180
1600	3	1.5	2.0	19.8	2.0	6.1	304	125	534	206
1800	0	1.5	1.3	21.3	2.0	3.7	245	133	587	182
1800	3	1.7	2.2	21.8	2.2	6.3	320	134	614	208
2000	0	1.6	1.3	22.4	2.1	4.0	265	139	601	203
2000	3	1.8	2.2	22.9	2.3	6.5	340	140	628	229
2200	0	1.8	1.5	25.3	2.4	4.4	297	174	709	222
2200	3	2.0	2.4	25.8	2.6	7.0	372	175	736	248
2400	0	2.0	1.7	27.6	2.6	4.8	317	179	775	242
2400	3	2.2	2.6	28.0	2.8	7.4	391	180	803	268
2600	0	2.2	1.8	29.7	2.8	5.0	335	210	878	244
2600	3	2.4	2.7	30.1	3.0	7.6	410	211	906	271
2800	0	2.4	2.0	32.2	3.1	5.5	359	215	956	264
2800	3	2.6	2.9	32.6	3.2	8.0	434	216	983	290
3000	0	2.5	2.0	32.9	3.2	5.5	371	232	988	266
3000	3	2.7	2.9	33.3	3.4	8.1	446	233	1015	292
3200	0	2.5	2.0	32.9	3.2	5.6	372	242	988	272
3200	3	2.7	2.9	33.3	3.4	8.1	447	243	1015	298

Table A2. Nutrient Levels in USDA Food Patterns with Milk Group Removed, Compared to Patterns with Three Cup Equivalents from the Milk Group—continued

Calorie Level	Milk Group Cup Equivalents	Saturated fatty acids g	Mono-unsaturated fatty acids g	Poly-unsaturated fatty acids g	18:2 Linoleic g	18:3 Linolenic g	20:5 n-3 EPA g	22:6 n-3 DHA g	18:0 Stearic g
1600	0	11.4	18.8	16.1	14.5	1.40	0.037	0.078	3.1
1600	3	14.0	20.0	16.4	14.7	1.45	0.037	0.078	3.6
1800	0	13.1	21.3	18.0	16.2	1.58	0.037	0.078	3.7
1800	3	15.8	22.4	18.2	16.3	1.63	0.037	0.078	4.2
2000	0	16.1	24.9	20.7	18.6	1.81	0.040	0.086	4.5
2000	3	18.7	26.1	20.9	18.7	1.85	0.040	0.086	5.0
2200	0	17.5	27.2	22.5	20.2	1.98	0.044	0.093	4.9
2200	3	20.1	28.4	22.8	20.4	2.03	0.044	0.093	5.4
2400	0	19.8	30.3	24.7	22.3	2.15	0.048	0.101	5.5
2400	3	22.5	31.4	25.0	22.4	2.20	0.048	0.101	6.0
2600	0	21.4	32.7	27.0	24.3	2.37	0.048	0.101	6.0
2600	3	24.0	33.8	27.2	24.4	2.42	0.048	0.101	6.5
2800	0	23.1	35.0	28.9	26.0	2.53	0.052	0.109	6.4
2800	3	25.7	36.2	29.1	26.2	2.57	0.052	0.109	6.9
3000	0	25.8	39.5	33.3	30.0	2.96	0.052	0.109	7.2
3000	3	28.4	40.7	33.5	30.2	3.01	0.052	0.109	7.7
3200	0	29.9	45.0	37.9	34.2	3.38	0.052	0.109	8.4
3200	3	32.6	46.1	38.2	34.4	3.42	0.052	0.109	8.9

Table A2. Nutrient Levels in USDA Food Patterns with Milk Group Removed, Compared to Patterns with Three Cup Equivalents from the Milk Group— continued

Calorie Level	Milk Group Cup Equivalent	Protein % kcal	Carbohydrate % kcal	Total lipid % kcal	Saturated fatty acids % kcal	Monounsaturated fatty acids % kcal	Polyunsaturated fatty acids % kcal
1600	0	17	52	33	8	12	11
1600	3	21	51	31	8	11	9
1800	0	16	54	33	8	12	10
1800	3	19	52	31	8	11	9
2000	0	15	53	34	8	13	11
2000	3	18	52	32	8	12	9
2200	0	15	54	34	8	13	10
2200	3	18	52	32	8	12	9
2400	0	15	53	34	8	13	10
2400	3	18	52	32	8	12	9
2600	0	15	54	34	8	13	10
2600	3	17	53	32	8	12	9
2800	0	14	55	33	8	12	10
2800	3	17	54	32	8	12	9
3000	0	14	54	35	8	13	11
3000	3	16	53	33	9	12	10
3200	0	13	53	37	9	14	12
3200	3	15	52	36	9	13	11

Table A3. Nutrient Levels (% of Goal or Limit and % of Kcal) in USDA Food Patterns with Milk Group Removed Compared to Base Food Patterns with Three Cup Equivalents from the Milk Group

Calorie Level	Milk Group Cup Equivalents	% of goal for:	Energy % goal	Protein % RDA	Carbo-hydrate % RDA	Dietary Fiber % goal[1]	Protein % of kcal	Carbo-hydrate % of kcal	Total lipid % kcal	Calcium % AI	Iron % RDA	Mag-nesium % RDA
1600	0	M/F 9 to 13	85%	168%	137%	106%	17%	52%	33%	22%	178%	104%
1600	3	M/F 9 to 13	100%	243%	157%	110%	21%	51%	31%	91%	182%	129%
1600	0	F 51 to 70	85%	124%	137%	106%	17%	52%	33%	24%	178%	78%
1600	3	F 51 to 70	100%	180%	157%	110%	21%	51%	31%	99%	182%	97%
1800	0	M/F 9 to 13	86%	181%	160%	108%	16%	54%	33%	25%	202%	115%
1800	3	M/F 9 to 13	100%	256%	180%	112%	19%	52%	31%	94%	206%	140%
1800	0	F 14-18	86%	134%	160%	108%	16%	54%	33%	25%	108%	77%
1800	3	F 14-18	100%	189%	180%	112%	19%	52%	31%	94%	110%	93%
1800	0	F 31-50	86%	134%	160%	108%	16%	54%	33%	33%	90%	86%
1800	3	F 31-50	100%	189%	180%	112%	19%	52%	31%	122%	91%	105%
2000	0	M 51-70	88%	117%	180%	103%	15%	53%	34%	29%	207%	69%
2000	3	M 51-70	100%	163%	200%	106%	18%	52%	32%	103%	211%	83%
2000	0	F19-30	88%	143%	180%	103%	15%	53%	34%	34%	92%	94%
2000	3	F19-30	100%	198%	200%	106%	18%	52%	32%	124%	94%	113%
2200	0	M 14-18	88%	142%	201%	108%	15%	54%	34%	31%	175%	81%
2200	3	M 14-18	100%	192%	221%	112%	18%	52%	32%	99%	177%	96%
2200	0	M 31-50	88%	132%	201%	108%	15%	54%	34%	40%	240%	80%
2200	3	M 31-50	100%	178%	221%	112%	18%	52%	32%	129%	244%	94%
2400	0	M 19-30	89%	143%	220%	106%	15%	53%	34%	43%	263%	89%
2400	3	M 19-30	99%	189%	240%	109%	18%	52%	32%	132%	266%	104%
2600	0	M 19-30	90%	152%	244%	110%	15%	54%	34%	48%	293%	99%
2600	3	M 19-30	99%	198%	264%	113%	17%	53%	32%	137%	297%	114%
2800	0	M 14-18	91%	177%	269%	110%	14%	55%	33%	40%	231%	105%
2800	3	M 14-18	100%	226%	289%	113%	17%	54%	32%	109%	234%	120%
3000	0	M 19-30	91%	168%	284%	110%	14%	54%	35%	54%	327%	112%
3000	3	M 19-30	99%	214%	304%	112%	16%	53%	33%	143%	331%	127%
3200	0	M 14-18	92%	181%	297%	104%	13%	53%	37%	42%	238%	109%
3200	3	M 14-18	99%	230%	317%	106%	15%	52%	36%	110%	241%	124%

[1]Goal for fiber is 14 grams per 1000 calories

Table A3. Nutrient Levels (% of Goal or Limit and % of Kcal) in USDA Food Patterns with Milk Group Removed Compared to Base Food Patterns with Three Cup Equivalents from the Milk Group—continued

Calorie Level	Milk Group Cup Equivalents	% of goal or limit for:	Phos-phorus % RDA	Potas-sium % AI	Sodium % UL	Zinc % RDA	Copper % RDA	Man-ganese % AI	Selenium % RDA	Vitamin A % RDA	Vitamin E % RDA	Vitamin D % AI	Vitamin C % RDA
1600	0	M/F 9 to 13	70%	50%	45%	124%	161%	209%	188%	76%	60%	31%	221%
1600	3	M/F 9 to 13	125%	66%	69%	166%	173%	210%	237%	126%	61%	125%	222%
1600	0	F 51 to 70	126%	48%	43%	124%	126%	186%	137%	65%	44%	16%	133%
1600	3	F 51 to 70	223%	63%	66%	166%	135%	187%	172%	108%	45%	62%	133%
1800	0	M/F 9 to 13	77%	57%	51%	131%	185%	192%	204%	87%	68%	32%	239%
1800	3	M/F 9 to 13	131%	73%	76%	173%	197%	193%	253%	137%	69%	126%	240%
1800	0	F 14-18	77%	54%	49%	117%	145%	228%	148%	75%	50%	32%	165%
1800	3	F 14-18	131%	70%	72%	154%	155%	229%	184%	117%	50%	126%	166%
1800	0	F 31-50	137%	54%	49%	131%	144%	202%	148%	75%	50%	32%	143%
1800	3	F 31-50	235%	70%	72%	173%	153%	203%	184%	117%	50%	126%	144%
2000	0	M 51-70	144%	59%	51%	100%	151%	163%	156%	62%	54%	18%	140%
2000	3	M 51-70	241%	74%	75%	130%	161%	164%	192%	95%	55%	64%	140%
2000	0	F19-30	144%	59%	51%	137%	151%	209%	156%	79%	54%	36%	168%
2000	3	F19-30	241%	74%	75%	179%	161%	210%	192%	122%	55%	129%	168%
2200	0	M 14-18	92%	67%	58%	114%	174%	198%	177%	70%	60%	40%	183%
2200	3	M 14-18	147%	82%	82%	144%	184%	199%	212%	103%	61%	133%	183%
2200	0	M 31-50	165%	67%	58%	114%	172%	189%	177%	70%	60%	40%	152%
2200	3	M 31-50	262%	82%	82%	144%	182%	190%	212%	103%	61%	133%	153%
2400	0	M 19-30	178%	69%	65%	125%	183%	208%	195%	75%	63%	44%	153%
2400	3	M 19-30	276%	84%	88%	155%	192%	208%	231%	108%	64%	137%	153%
2600	0	M 19-30	195%	76%	70%	135%	202%	233%	208%	84%	70%	46%	165%
2600	3	M 19-30	292%	91%	94%	165%	211%	234%	243%	117%	71%	140%	166%
2800	0	M 14-18	118%	82%	76%	146%	220%	267%	226%	89%	74%	50%	224%
2800	3	M 14-18	173%	97%	100%	177%	229%	268%	262%	122%	75%	144%	224%
3000	0	M 19-30	217%	87%	78%	149%	228%	262%	228%	93%	83%	51%	194%
3000	3	M 19-30	315%	102%	101%	180%	237%	263%	264%	126%	84%	145%	195%
3200	0	M 14-18	122%	87%	79%	149%	230%	274%	228%	96%	89%	53%	233%
3200	3	M 14-18	176%	102%	102%	180%	240%	275%	264%	129%	90%	146%	234%

Table A3. Nutrient Levels (% of Goal or Limit and % of Kcal) in USDA Food Patterns with Milk Group Removed Compared to Base Food Patterns with Three Cup Equivalents from the Milk Group—continued

Calorie Level	Milk Group Cup Equivalents	% of goal or limit for:	Thiamin % RDA	Riboflavin % RDA	Niacin % RDA	Vitamin B-6 % RDA	Vitamin B-12 % RDA	Choline % AI	Vitamin K % AI	Folate % RDA	Cholesterol % limit[2]
1600	0	M/F 9 to 13	148%	126%	161%	183%	199%	61%	207%	169%	60%
1600	3	M/F 9 to 13	171%	226%	165%	202%	341%	81%	209%	178%	69%
1600	0	F 51 to 70	121%	103%	138%	122%	149%	54%	138%	127%	60%
1600	3	F 51 to 70	140%	185%	141%	134%	256%	72%	139%	134%	69%
1800	0	M/F 9 to 13	171%	141%	178%	201%	205%	65%	221%	196%	61%
1800	3	M/F 9 to 13	193%	241%	181%	220%	347%	85%	223%	205%	69%
1800	0	F 14-18	154%	127%	152%	167%	154%	61%	177%	147%	61%
1800	3	F 14-18	174%	217%	155%	183%	261%	80%	178%	154%	69%
1800	0	F 31-50	140%	116%	152%	154%	154%	58%	148%	147%	61%
1800	3	F 31-50	158%	197%	155%	169%	261%	75%	149%	154%	69%
2000	0	M 51-70	133%	103%	140%	126%	165%	48%	116%	150%	68%
2000	3	M 51-70	150%	172%	143%	137%	272%	62%	117%	157%	76%
2000	0	F19-30	145%	122%	160%	165%	165%	62%	155%	150%	68%
2000	3	F19-30	164%	203%	163%	180%	272%	80%	156%	157%	76%
2200	0	M 14-18	153%	117%	158%	186%	183%	54%	232%	177%	74%
2200	3	M 14-18	170%	186%	161%	201%	290%	68%	234%	184%	83%
2200	0	M 31-50	153%	117%	158%	186%	183%	54%	145%	177%	74%
2200	3	M 31-50	170%	186%	161%	201%	290%	68%	146%	184%	83%
2400	0	M 19-30	167%	128%	172%	199%	201%	58%	149%	194%	81%
2400	3	M 19-30	184%	197%	175%	213%	308%	71%	150%	201%	89%
2600	0	M 19-30	185%	139%	186%	216%	210%	61%	175%	220%	81%
2600	3	M 19-30	202%	208%	188%	231%	317%	74%	176%	226%	90%
2800	0	M 14-18	202%	152%	201%	235%	228%	65%	287%	239%	88%
2800	3	M 14-18	219%	221%	204%	249%	335%	79%	288%	246%	97%
3000	0	M 19-30	208%	155%	206%	245%	230%	67%	193%	247%	89%
3000	3	M 19-30	225%	224%	208%	259%	337%	81%	194%	254%	97%
3200	0	M 14-18	208%	156%	206%	246%	233%	68%	323%	247%	91%
3200	3	M 14-18	225%	224%	208%	261%	340%	81%	324%	254%	99%

[2]Limit for cholesterol is 300 mg per day.

Table A3. Nutrient Levels (% of Goal or Limit and % of Kcal) in USDA Food Patterns with Milk Group Removed Compared to Base Food Patterns with Three Cup Equivalents from the Milk Group—continued

Calorie Level	Milk Group Cup Equivalents	% of goal or limit for:	Saturated fatty acids % of kcal	Monounsaturated fatty acids % of kcal	Polyunsaturated fatty acids % of kcal	18:2 Linoleic % AI	18:3 Linolenic % of AI
1600	0	M/F 9 to 13	8%	12%	11%	145%	140%
1600	3	M/F 9 to 13	8%	11%	9%	147%	145%
1600	0	F 51 to 70	8%	12%	11%	132%	128%
1600	3	F 51 to 70	8%	11%	9%	133%	132%
1800	0	M/F 9 to 13	8%	12%	10%	135%	132%
1800	3	M/F 9 to 13	8%	11%	9%	136%	135%
1800	0	F 14-18	8%	12%	10%	147%	144%
1800	3	F 14-18	8%	11%	9%	149%	148%
1800	0	F 31-50	8%	12%	10%	135%	144%
1800	3	F 31-50	8%	11%	9%	136%	148%
2000	0	M 51-70	8%	13%	11%	133%	113%
2000	3	M 51-70	8%	12%	9%	134%	116%
2000	0	F19-30	8%	13%	11%	155%	164%
2000	3	F19-30	8%	12%	9%	156%	168%
2200	0	M 14-18	8%	13%	10%	126%	124%
2200	3	M 14-18	8%	12%	9%	128%	127%
2200	0	M 31-50	8%	13%	10%	119%	124%
2200	3	M 31-50	8%	12%	9%	120%	127%
2400	0	M 19-30	8%	13%	10%	131%	134%
2400	3	M 19-30	8%	12%	9%	132%	137%
2600	0	M 19-30	8%	13%	10%	143%	148%
2600	3	M 19-30	8%	12%	9%	144%	151%
2800	0	M 14-18	8%	12%	10%	163%	158%
2800	3	M 14-18	8%	12%	9%	164%	161%
3000	0	M 19-30	8%	13%	11%	176%	185%
3000	3	M 19-30	9%	12%	10%	177%	188%
3200	0	M 14-18	9%	14%	12%	187%	185%
3200	3	M 14-18	9%	13%	11%	188%	188%

Table A4. Nutrient Levels in USDA Food Patterns with Different Milk Group Compositions[1]

Energy Level	Milk Group Composition	Energy kcal	Protein g	Total lipid g	Carbo-hydrate g	Dietary Fiber g	Calcium mg	Iron mg	Magnes-ium mg	Phos-phorus mg	Potassium mg	Sodium mg
1600	Base Pattern[2]	1602	83	55	203	25	1184	15	310	1562	2971	1527
1600	M67-C33 Pattern[3]	1586	82	53	203	24	1183	14	314	1582	3068	1476
1600	Milk Only Pattern[4]	1607	82	51	214	24	1188	14	331	1621	3408	1294
1800	Base Pattern[2]	1797	87	61	234	28	1221	16	336	1643	3272	1666
1800	M67-C33 Pattern[3]	1781	87	60	234	28	1221	16	340	1663	3368	1615
1800	Milk Only Pattern[4]	1803	86	58	245	28	1225	16	357	1703	3709	1433
2000	Base Pattern[2]	1997	91	71	260	30	1235	17	351	1690	3478	1722
2000	M67-C33 Pattern[3]	1981	91	70	259	30	1235	17	354	1710	3574	1672
2000	Milk Only Pattern[4]	2002	90	67	270	29	1239	17	371	1750	3915	1490
2200	Base Pattern[2]	2190	100	77	287	34	1290	20	394	1836	3836	1883
2200	M67-C33 Pattern[3]	2174	99	76	287	34	1290	19	398	1855	3933	1832
2200	Milk Only Pattern[4]	2196	99	74	298	34	1294	19	415	1895	4273	1650
2400	Base Pattern[2]	2384	106	86	312	37	1323	21	418	1932	3945	2028
2400	M67-C33 Pattern[3]	2368	105	84	311	36	1322	21	422	1952	4042	1977
2400	Milk Only Pattern[4]	2389	105	82	322	36	1327	21	439	1992	4382	1796
2600	Base Pattern[2]	2583	111	92	343	41	1374	24	457	2046	4275	2153
2600	M67-C33 Pattern[3]	2567	111	91	343	41	1373	24	461	2065	4371	2102
2600	Milk Only Pattern[4]	2589	110	88	354	41	1378	24	478	2105	4712	1920
2800	Base Pattern[2]	2795	118	99	376	44	1416	26	491	2156	4544	2296
2800	M67-C33 Pattern[3]	2779	117	97	376	44	1416	26	495	2176	4641	2245
2800	Milk Only Pattern[4]	2800	117	95	387	44	1420	26	512	2216	4981	2063
3000	Base Pattern[2]	2985	120	111	396	47	1434	26	509	2203	4780	2329
3000	M67-C33 Pattern[3]	2969	119	109	395	47	1434	26	512	2223	4876	2279
3000	Milk Only Pattern[4]	2991	119	107	406	47	1438	26	529	2263	5217	2097
3200	Base Pattern[2]	3182	120	126	412	48	1435	26	509	2204	4781	2353
3200	M67-C33 Pattern[3]	3166	119	124	412	47	1435	26	512	2224	4877	2302
3200	Milk Only Pattern[4]	3188	119	122	423	47	1439	26	529	2264	5218	2120

[1] All Patterns include 3 cup equivalents from the Milk Group.
[2] Base Pattern is 52% milk, 45% cheese, and 1-2% yogurt.
[3] M67-C33 Pattern is 67% milk and 33% cheese.
[4] Milk only Pattern is 100% milk.

Table A4. Nutrient Levels in USDA Food Patterns with Different Milk Group Compositions[1]—continued

Energy Level	Milk Group Composition	Zinc mg	Copper mg	Man-ganese mg	Selenium mcg	Vitamin A mcg_RAE	Vitamin E mg AT	Vitamin D IU	Vitamin C mg
1600	Base Pattern[2]	13	1.212	3	95	756	6.7	249	100
1600	M67-C33 Pattern[3]	13	1.203	3	96	795	6.7	296	100
1600	Milk Only Pattern[4]	13	1.225	3	98	907	6.7	408	100
1800	Base Pattern[2]	14	1.376	4	101	820	7.6	252	108
1800	M67-C33 Pattern[3]	14	1.367	4	102	860	7.5	298	107
1800	Milk Only Pattern[4]	14	1.389	4	104	971	7.5	411	107
2000	Base Pattern[2]	14	1.446	4	106	851	8.3	258	126
2000	M67-C33 Pattern[3]	14	1.437	4	107	891	8.3	304	126
2000	Milk Only Pattern[4]	14	1.459	4	109	1002	8.2	417	126
2200	Base Pattern[2]	16	1.635	4	117	930	9.1	266	137
2200	M67-C33 Pattern[3]	16	1.626	4	118	969	9.1	312	137
2200	Milk Only Pattern[4]	16	1.648	4	120	1081	9.1	425	137
2400	Base Pattern[2]	17	1.727	5	127	969	9.6	275	138
2400	M67-C33 Pattern[3]	17	1.718	5	128	1008	9.6	321	138
2400	Milk Only Pattern[4]	17	1.740	5	130	1120	9.6	434	138
2600	Base Pattern[2]	18	1.900	5	134	1056	10.6	279	149
2600	M67-C33 Pattern[3]	18	1.891	5	135	1095	10.6	326	149
2600	Milk Only Pattern[4]	18	1.913	5	137	1207	10.5	438	149
2800	Base Pattern[2]	19	2.037	6	144	1098	11.2	287	168
2800	M67-C33 Pattern[3]	19	2.028	6	145	1137	11.2	334	168
2800	Milk Only Pattern[4]	19	2.050	6	147	1248	11.2	446	168
3000	Base Pattern[2]	20	2.132	6	145	1133	12.5	289	175
3000	M67-C33 Pattern[3]	20	2.123	6	146	1173	12.5	336	175
3000	Milk Only Pattern[4]	19	2.145	6	148	1284	12.5	448	175
3200	Base Pattern[2]	20	2.132	6	145	1160	13.5	293	175
3200	M67-C33 Pattern[3]	20	2.123	6	146	1199	13.5	339	175
3200	Milk Only Pattern[4]	20	2.145	6	148	1310	13.5	451	175

[1] All Patterns include 3 cup equivalents from the Milk Group.
[2] Base Pattern is 52% milk, 45% cheese, and 1-2% yogurt.
[3] M67-C33 Pattern is 67% milk and 33% cheese.
[4] Milk only Pattern is 100% milk.

Table A4. Nutrient Levels in USDA Food Patterns with Different Milk Group Compositions[1]—continued.

Energy Level	Milk Group Composition	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B-6 mg	Vitamin B-12 mcg	Choline mg	Vitamin K mcg	Folate mcg DFE	Cholesterol mg
1600	Base Pattern[2]	1.5	2.0	19.8	2.0	6.1	304	125	534	206
1600	M67-C33 Pattern[3]	1.6	2.1	19.8	2.0	6.4	313	125	536	201
1600	Milk Only Pattern[4]	1.7	2.5	20.0	2.1	7.3	344	124	544	195
1800	Base Pattern[2]	1.7	2.2	21.8	2.2	6.3	320	134	614	208
1800	M67-C33 Pattern[3]	1.8	2.3	21.8	2.2	6.5	328	133	616	203
1800	Milk Only Pattern[4]	1.9	2.6	22.0	2.3	7.4	360	133	624	197
2000	Base Pattern[2]	1.8	2.2	22.9	2.3	6.5	340	140	628	229
2000	M67-C33 Pattern[3]	1.8	2.3	22.9	2.4	6.8	348	140	630	224
2000	Milk Only Pattern[4]	1.9	2.7	23.1	2.4	7.6	379	139	637	218
2200	Base Pattern[2]	2.0	2.4	25.8	2.6	7.0	372	175	736	248
2200	M67-C33 Pattern[3]	2.1	2.5	25.8	2.6	7.2	380	175	738	243
2200	Milk Only Pattern[4]	2.2	2.9	26.0	2.7	8.1	411	174	745	236
2400	Base Pattern[2]	2.2	2.6	28.0	2.8	7.4	391	180	803	268
2400	M67-C33 Pattern[3]	2.2	2.7	28.0	2.8	7.6	400	179	804	263
2400	Milk Only Pattern[4]	2.3	3.0	28.2	2.9	8.5	431	179	812	257
2600	Base Pattern[2]	2.4	2.7	30.1	3.0	7.6	410	211	906	271
2600	M67-C33 Pattern[3]	2.5	2.8	30.2	3.0	7.9	418	211	907	265
2600	Milk Only Pattern[4]	2.6	3.1	30.4	3.1	8.7	449	210	915	259
2800	Base Pattern[2]	2.6	2.9	32.6	3.2	8.0	434	216	983	290
2800	M67-C33 Pattern[3]	2.6	3.0	32.7	3.3	8.3	442	216	985	285
2800	Milk Only Pattern[4]	2.8	3.3	32.9	3.3	9.1	474	215	993	278
3000	Base Pattern[2]	2.7	2.9	33.3	3.4	8.1	446	233	1015	292
3000	M67-C33 Pattern[3]	2.7	3.0	33.4	3.4	8.3	454	233	1017	287
3000	Milk Only Pattern[4]	2.8	3.4	33.6	3.5	9.2	485	232	1025	281
3200	Base Pattern[2]	2.7	2.9	33.3	3.4	8.1	447	243	1015	298
3200	M67-C33 Pattern[3]	2.7	3.0	33.4	3.4	8.4	455	243	1017	293
3200	Milk Only Pattern[4]	2.8	3.4	33.6	3.5	9.3	487	242	1025	286

[1] All Patterns include 3 cup equivalents from the Milk Group.
[2] Base Pattern is 52% milk, 45% cheese, and 1-2% yogurt.
[3] M67-C33 Pattern is 67% milk and 33% cheese.
[4] Milk only Pattern is 100% milk.

Table A4. Nutrient Levels in USDA Food Patterns with Different Milk Group Compositions[1]—continued

Energy Level	Milk Group Composition	Saturated fatty acids g	Mono-unsaturated fatty acids g	Poly-unsaturated fatty acids g	18:2 Linoleic g	18:3 Linolenic g	20:5 n-3 EPA g	22:6 n-3 DHA g	18:0 Stearic g
1600	Base Pattern[2]	14.0	20.0	16.4	14.7	1.45	0.037	0.078	3.6
1600	M67-C33 Pattern[3]	13.1	19.6	16.2	14.6	1.43	0.037	0.078	3.5
1600	Milk Only Pattern[4]	11.8	19.0	16.2	14.5	1.41	0.037	0.078	3.2
1800	Base Pattern[2]	15.8	22.4	18.2	16.3	1.63	0.037	0.078	4.2
1800	M67-C33 Pattern[3]	14.9	22.0	18.1	16.3	1.60	0.037	0.078	4.0
1800	Milk Only Pattern[4]	13.6	21.4	18.0	16.2	1.59	0.037	0.078	3.7
2000	Base Pattern[2]	18.7	26.1	20.9	18.7	1.85	0.040	0.086	5.0
2000	M67-C33 Pattern[3]	17.8	25.7	20.8	18.7	1.83	0.040	0.086	4.8
2000	Milk Only Pattern[4]	16.5	25.1	20.7	18.6	1.81	0.040	0.086	4.6
2200	Base Pattern[2]	20.1	28.4	22.8	20.4	2.03	0.044	0.093	5.4
2200	M67-C33 Pattern[3]	19.3	28.0	22.6	20.3	2.00	0.044	0.093	5.2
2200	Milk Only Pattern[4]	17.9	27.4	22.5	20.3	1.99	0.044	0.093	5.0
2400	Base Pattern[2]	22.5	31.4	25.0	22.4	2.20	0.048	0.101	6.0
2400	M67-C33 Pattern[3]	21.6	31.0	24.8	22.3	2.17	0.048	0.101	5.9
2400	Milk Only Pattern[4]	20.2	30.4	24.7	22.3	2.16	0.048	0.101	5.6
2600	Base Pattern[2]	24.0	33.8	27.2	24.4	2.42	0.048	0.101	6.5
2600	M67-C33 Pattern[3]	23.2	33.4	27.1	24.4	2.39	0.048	0.101	6.3
2600	Milk Only Pattern[4]	21.8	32.8	27.0	24.3	2.38	0.048	0.101	6.0
2800	Base Pattern[2]	25.7	36.2	29.1	26.2	2.57	0.052	0.109	6.9
2800	M67-C33 Pattern[3]	24.8	35.8	29.0	26.1	2.55	0.052	0.109	6.8
2800	Milk Only Pattern[4]	23.5	35.2	28.9	26.0	2.53	0.052	0.109	6.5
3000	Base Pattern[2]	28.4	40.7	33.5	30.2	3.01	0.052	0.109	7.7
3000	M67-C33 Pattern[3]	27.5	40.2	33.4	30.1	2.98	0.052	0.109	7.5
3000	Milk Only Pattern[4]	26.2	39.7	33.3	30.0	2.97	0.052	0.109	7.3
3200	Base Pattern[2]	32.6	46.1	38.2	34.4	3.42	0.052	0.109	8.9
3200	M67-C33 Pattern[3]	31.7	45.7	38.0	34.3	3.40	0.052	0.109	8.7
3200	Milk Only Pattern[4]	30.3	45.1	38.0	34.2	3.38	0.052	0.109	8.5

[1] All Patterns include 3 cup equivalents from the Milk Group.
[2] Base Pattern is 52% milk, 45% cheese, and 1-2% yogurt.
[3] M67-C33 Pattern is 67% milk and 33% cheese.
[4] Milk only Pattern is 100% milk.

Table A5. Nutrient Levels as a Percent of the Goal in Food Patterns with Different Milk Group Compositions[1]

Calorie Level	Milk Group Composition	% of goal or limit for:	Energy	Protein	Carbo-hydrate	Dietary Fiber	Total lipid (% kcal)	Calcium	Iron	Mag-nesium
1600	Base Pattern[2]	M/F 9 to 13	100%	243%	157%	110%	31%	91%	182%	129%
1600	M67-C33 Pattern[3]	M/F 9 to 13	99%	242%	156%	109%	30%	91%	181%	131%
1600	Milk Only Pattern[4]	M/F 9 to 13	100%	254%	188%	110%	29%	94%	204%	149%
1600	Base Pattern[2]	F 51 to 70	100%	180%	157%	110%	31%	99%	182%	97%
1600	M67-C33 Pattern[3]	F 51 to 70	99%	179%	156%	109%	30%	99%	181%	98%
1600	Milk Only Pattern[4]	F 51 to 70	100%	178%	165%	108%	29%	99%	181%	103%
1800	Base Pattern[2]	M/F 9 to 13	100%	256%	180%	112%	31%	94%	206%	140%
1800	M67-C33 Pattern[3]	M/F 9 to 13	99%	255%	180%	111%	30%	94%	205%	142%
1800	Milk Only Pattern[4]	M/F 9 to 13	100%	254%	188%	110%	29%	94%	204%	149%
1800	Base Pattern[2]	F 14-18	100%	189%	180%	112%	31%	94%	110%	93%
1800	M67-C33 Pattern[3]	F 14-18	99%	189%	180%	111%	30%	94%	109%	94%
1800	Milk Only Pattern[4]	F 14-18	100%	188%	188%	110%	29%	94%	109%	99%
1800	Base Pattern[2]	F 31-50	100%	189%	180%	112%	31%	122%	91%	105%
1800	M67-C33 Pattern[3]	F 31-50	99%	189%	180%	111%	30%	122%	91%	106%
1800	Milk Only Pattern[4]	F 31-50	100%	188%	188%	110%	29%	123%	91%	112%
2000	Base Pattern[2]	M 51-70	100%	163%	200%	106%	32%	103%	211%	83%
2000	M67-C33 Pattern[3]	M 51-70	99%	162%	199%	105%	32%	103%	210%	84%
2000	Milk Only Pattern[4]	M 51-70	100%	161%	208%	105%	30%	103%	210%	88%
2000	Base Pattern[2]	F19-30	100%	198%	200%	106%	32%	124%	94%	113%
2000	M67-C33 Pattern[3]	F19-30	99%	197%	199%	105%	32%	123%	93%	114%
2000	Milk Only Pattern[4]	F19-30	100%	196%	208%	105%	30%	124%	93%	120%
2200	Base Pattern[2]	M 14-18	100%	192%	221%	112%	32%	99%	177%	96%
2200	M67-C33 Pattern[3]	M 14-18	99%	191%	220%	111%	31%	99%	177%	97%
2200	Milk Only Pattern[4]	M 14-18	100%	190%	229%	110%	30%	100%	177%	101%
2200	Base Pattern[2]	M 31-50	100%	178%	221%	112%	32%	129%	244%	94%
2200	M67-C33 Pattern[3]	M 31-50	99%	177%	220%	111%	31%	129%	243%	95%
2200	Milk Only Pattern[4]	M 31-50	100%	176%	229%	110%	30%	129%	243%	99%
2400	Base Pattern[2]	M 19-30	99%	189%	240%	109%	32%	132%	266%	104%
2400	M67-C33 Pattern[3]	M 19-30	99%	188%	240%	108%	32%	132%	266%	105%
2400	Milk Only Pattern[4]	M 19-30	100%	187%	248%	107%	31%	133%	265%	110%
2600	Base Pattern[2]	M 19-30	99%	198%	264%	113%	32%	137%	297%	114%
2600	M67-C33 Pattern[3]	M 19-30	99%	197%	264%	112%	32%	137%	296%	115%
2600	Milk Only Pattern[4]	M 19-30	100%	196%	272%	112%	31%	138%	296%	119%
2800	Base Pattern[2]	M 14-18	100%	226%	289%	113%	32%	109%	234%	120%
2800	M67-C33 Pattern[3]	M 14-18	99%	225%	289%	112%	31%	109%	233%	121%
2800	Milk Only Pattern[4]	M 14-18	100%	224%	298%	112%	30%	109%	233%	125%
3000	Base Pattern[2]	M 19-30	99%	214%	304%	112%	33%	143%	331%	127%
3000	M67-C33 Pattern[3]	M 19-30	99%	213%	304%	112%	33%	143%	330%	128%
3000	Milk Only Pattern[4]	M 19-30	100%	212%	312%	111%	32%	144%	330%	132%
3200	Base Pattern[2]	M 14-18	99%	230%	317%	106%	36%	110%	241%	124%
3200	M67-C33 Pattern[3]	M 14-18	99%	230%	317%	106%	35%	110%	240%	125%
3200	Milk Only Pattern[4]	M 14-18	100%	229%	325%	105%	34%	111%	240%	129%

[1] All Patterns include 3 cup equivalents from the Milk Group.
[2] Base Pattern is 52% milk, 45% cheese, and 1-2% yogurt.
[3] M67-C33 Pattern is 67% milk and 33% cheese.
[4] Milk only Pattern is 100% milk.

Table A5. Nutrient Levels as a Percent of the Goal in Food Patterns with Different Milk Group Compositions[1]—continued

Calorie Level	Milk Group Composition	% of goal or limit for:	Phos-phorus	Potassium	Sodium	Zinc	Copper	Man-ganese	Selenium	Vitamin A
1600	Base Pattern[2]	M/F 9 to 13	125%	66%	69%	166%	173%	210%	237%	126%
1600	M67-C33 Pattern[3]	M/F 9 to 13	127%	68%	67%	165%	172%	210%	240%	133%
1600	Milk Only Pattern[4]	M/F 9 to 13	130%	76%	59%	163%	175%	211%	245%	151%
1600	Base Pattern[2]	F 51 to 70	223%	63%	66%	166%	135%	187%	172%	108%
1600	M67-C33 Pattern[3]	F 51 to 70	226%	65%	64%	165%	134%	187%	174%	114%
1600	Milk Only Pattern[4]	F 51 to 70	232%	73%	56%	163%	136%	187%	178%	130%
1800	Base Pattern[2]	M/F 9 to 13	131%	73%	76%	173%	197%	193%	253%	137%
1800	M67-C33 Pattern[3]	M/F 9 to 13	133%	75%	73%	172%	195%	192%	256%	143%
1800	Milk Only Pattern[4]	M/F 9 to 13	136%	82%	65%	170%	198%	193%	261%	162%
1800	Base Pattern[2]	F 14-18	131%	70%	72%	154%	155%	229%	184%	117%
1800	M67-C33 Pattern[3]	F 14-18	133%	72%	70%	153%	154%	229%	186%	123%
1800	Milk Only Pattern[4]	F 14-18	136%	79%	62%	151%	156%	229%	190%	139%
1800	Base Pattern[2]	F 31-50	235%	70%	72%	173%	153%	203%	184%	117%
1800	M67-C33 Pattern[3]	F 31-50	238%	72%	70%	172%	152%	203%	186%	123%
1800	Milk Only Pattern[4]	F 31-50	243%	79%	62%	170%	154%	204%	190%	139%
2000	Base Pattern[2]	M 51-70	241%	74%	75%	130%	161%	164%	192%	95%
2000	M67-C33 Pattern[3]	M 51-70	244%	76%	73%	130%	160%	164%	194%	99%
2000	Milk Only Pattern[4]	M 51-70	250%	83%	65%	128%	162%	164%	198%	111%
2000	Base Pattern[2]	F19-30	241%	74%	75%	179%	161%	210%	192%	122%
2000	M67-C33 Pattern[3]	F19-30	244%	76%	73%	178%	160%	209%	194%	127%
2000	Milk Only Pattern[4]	F19-30	250%	83%	65%	176%	162%	210%	198%	143%
2200	Base Pattern[2]	M 14-18	147%	82%	82%	144%	184%	199%	212%	103%
2200	M67-C33 Pattern[3]	M 14-18	148%	84%	80%	143%	183%	199%	214%	108%
2200	Milk Only Pattern[4]	M 14-18	152%	91%	72%	142%	185%	199%	218%	120%
2200	Base Pattern[2]	M 31-50	262%	82%	82%	144%	182%	190%	212%	103%
2200	M67-C33 Pattern[3]	M 31-50	265%	84%	80%	143%	181%	190%	214%	108%
2200	Milk Only Pattern[4]	M 31-50	271%	91%	72%	142%	183%	190%	218%	120%
2400	Base Pattern[2]	M 19-30	276%	84%	88%	155%	192%	208%	231%	108%
2400	M67-C33 Pattern[3]	M 19-30	279%	86%	86%	154%	191%	208%	233%	112%
2400	Milk Only Pattern[4]	M 19-30	285%	93%	78%	153%	193%	209%	236%	124%
2600	Base Pattern[2]	M 19-30	292%	91%	94%	165%	211%	234%	243%	117%
2600	M67-C33 Pattern[3]	M 19-30	295%	93%	91%	164%	210%	234%	245%	122%
2600	Milk Only Pattern[4]	M 19-30	301%	100%	83%	163%	213%	234%	249%	134%
2800	Base Pattern[2]	M 14-18	173%	97%	100%	177%	229%	268%	262%	122%
2800	M67-C33 Pattern[3]	M 14-18	174%	99%	98%	176%	228%	268%	264%	126%
2800	Milk Only Pattern[4]	M 14-18	177%	106%	90%	174%	230%	268%	268%	139%
3000	Base Pattern[2]	M 19-30	315%	102%	101%	180%	237%	263%	264%	126%
3000	M67-C33 Pattern[3]	M 19-30	318%	104%	99%	179%	236%	263%	266%	130%
3000	Milk Only Pattern[4]	M 19-30	323%	111%	91%	177%	238%	263%	270%	143%
3200	Base Pattern[2]	M 14-18	176%	102%	102%	180%	240%	275%	264%	129%
3200	M67-C33 Pattern[3]	M 14-18	178%	104%	100%	179%	239%	275%	266%	133%
3200	Milk Only Pattern[4]	M 14-18	181%	111%	92%	177%	241%	275%	270%	146%

[1] All Patterns include 3 cup equivalents from the Milk Group.
[2] Base Pattern is 52% milk, 45% cheese, and 1-2% yogurt.
[3] M67-C33 Pattern is 67% milk and 33% cheese.
[4] Milk only Pattern is 100% milk.

Table A5. Nutrient Levels as a Percent of the Goal in Food Patterns with Different Milk Group Compositions[1]—continued

Calorie Level	Milk Group Composition	% of goal or limit for:	Vitamin E	Vitamin D	Vitamin C	Thiamin	Riboflavin	Niacin	Vitamin B-6	Vitamin B-12
1600	Base Pattern[2]	M/F 9 to 13	61%	125%	222%	171%	226%	165%	202%	341%
1600	M67-C33 Pattern[3]	M/F 9 to 13	61%	148%	221%	173%	237%	165%	204%	355%
1600	Milk Only Pattern[4]	M/F 9 to 13	61%	204%	221%	185%	275%	167%	210%	403%
1600	Base Pattern[2]	F 51 to 70	45%	62%	133%	140%	185%	141%	134%	256%
1600	M67-C33 Pattern[3]	F 51 to 70	45%	74%	133%	142%	194%	141%	136%	267%
1600	Milk Only Pattern[4]	F 51 to 70	44%	102%	133%	151%	225%	143%	140%	302%
1800	Base Pattern[2]	M/F 9 to 13	69%	126%	240%	193%	241%	181%	220%	347%
1800	M67-C33 Pattern[3]	M/F 9 to 13	68%	149%	239%	196%	252%	182%	221%	361%
1800	Milk Only Pattern[4]	M/F 9 to 13	68%	205%	239%	207%	290%	183%	228%	409%
1800	Base Pattern[2]	F 14-18	50%	126%	166%	174%	217%	155%	183%	261%
1800	M67-C33 Pattern[3]	F 14-18	50%	149%	165%	176%	227%	156%	184%	271%
1800	Milk Only Pattern[4]	F 14-18	50%	205%	165%	187%	261%	157%	190%	307%
1800	Base Pattern[2]	F 31-50	50%	126%	144%	158%	197%	155%	169%	261%
1800	M67-C33 Pattern[3]	F 31-50	50%	149%	143%	160%	206%	156%	170%	271%
1800	Milk Only Pattern[4]	F 31-50	50%	205%	143%	170%	237%	157%	175%	307%
2000	Base Pattern[2]	M 51-70	55%	64%	140%	150%	172%	143%	137%	272%
2000	M67-C33 Pattern[3]	M 51-70	55%	76%	140%	152%	180%	143%	138%	282%
2000	Milk Only Pattern[4]	M 51-70	55%	104%	140%	161%	206%	144%	142%	318%
2000	Base Pattern[2]	F19-30	55%	129%	168%	164%	203%	163%	180%	272%
2000	M67-C33 Pattern[3]	F19-30	55%	152%	168%	166%	213%	164%	181%	282%
2000	Milk Only Pattern[4]	F19-30	55%	208%	168%	175%	244%	165%	186%	318%
2200	Base Pattern[2]	M 14-18	61%	133%	183%	170%	186%	161%	201%	290%
2200	M67-C33 Pattern[3]	M 14-18	61%	156%	183%	172%	194%	161%	202%	300%
2200	Milk Only Pattern[4]	M 14-18	61%	212%	183%	181%	220%	163%	207%	336%
2200	Base Pattern[2]	M 31-50	61%	133%	153%	170%	186%	161%	201%	290%
2200	M67-C33 Pattern[3]	M 31-50	61%	156%	152%	172%	194%	161%	202%	300%
2200	Milk Only Pattern[4]	M 31-50	61%	212%	152%	181%	220%	163%	207%	336%
2400	Base Pattern[2]	M 19-30	64%	137%	153%	184%	197%	175%	213%	308%
2400	M67-C33 Pattern[3]	M 19-30	64%	161%	153%	186%	205%	175%	215%	319%
2400	Milk Only Pattern[4]	M 19-30	64%	217%	153%	195%	231%	177%	220%	354%
2600	Base Pattern[2]	M 19-30	71%	140%	166%	202%	208%	188%	231%	317%
2600	M67-C33 Pattern[3]	M 19-30	70%	163%	165%	204%	216%	189%	232%	327%
2600	Milk Only Pattern[4]	M 19-30	70%	219%	165%	213%	242%	190%	237%	363%
2800	Base Pattern[2]	M 14-18	75%	144%	224%	219%	221%	204%	249%	335%
2800	M67-C33 Pattern[3]	M 14-18	75%	167%	224%	221%	229%	204%	251%	345%
2800	Milk Only Pattern[4]	M 14-18	75%	223%	224%	229%	255%	205%	256%	381%
3000	Base Pattern[2]	M 19-30	84%	145%	195%	225%	224%	208%	259%	337%
3000	M67-C33 Pattern[3]	M 19-30	83%	168%	194%	227%	232%	209%	261%	348%
3000	Milk Only Pattern[4]	M 19-30	83%	224%	194%	236%	258%	210%	266%	383%
3200	Base Pattern[2]	M 14-18	90%	146%	234%	225%	224%	208%	261%	340%
3200	M67-C33 Pattern[3]	M 14-18	90%	170%	233%	227%	232%	209%	262%	350%
3200	Milk Only Pattern[4]	M 14-18	90%	226%	233%	236%	258%	210%	267%	386%

[1] All Patterns include 3 cup equivalents from the Milk Group.
[2] Base Pattern is 52% milk, 45% cheese, and 1-2% yogurt.
[3] M67-C33 Pattern is 67% milk and 33% cheese.
[4] Milk only Pattern is 100% milk.

Table A5. Nutrient Levels as a Percent of the Goal in Food Patterns with Different Milk Group Compositions[1]—continued

Calorie Level	Milk Group Composition	% of goal or limit for:	Choline	Vitamin K	Folate	Cholesterol
1600	Base Pattern[2]	M/F 9 to 13	81%	209%	178%	69%
1600	M67-C33 Pattern[3]	M/F 9 to 13	83%	208%	179%	67%
1600	Milk Only Pattern[4]	M/F 9 to 13	92%	207%	181%	65%
1600	Base Pattern[2]	F 51 to 70	72%	139%	134%	69%
1600	M67-C33 Pattern[3]	F 51 to 70	74%	139%	134%	67%
1600	Milk Only Pattern[4]	F 51 to 70	81%	138%	136%	65%
1800	Base Pattern[2]	M/F 9 to 13	85%	223%	205%	69%
1800	M67-C33 Pattern[3]	M/F 9 to 13	87%	222%	205%	68%
1800	Milk Only Pattern[4]	M/F 9 to 13	96%	221%	208%	66%
1800	Base Pattern[2]	F 14-18	80%	178%	154%	69%
1800	M67-C33 Pattern[3]	F 14-18	82%	178%	154%	68%
1800	Milk Only Pattern[4]	F 14-18	90%	177%	156%	66%
1800	Base Pattern[2]	F 31-50	75%	149%	154%	69%
1800	M67-C33 Pattern[3]	F 31-50	77%	148%	154%	68%
1800	Milk Only Pattern[4]	F 31-50	85%	148%	156%	66%
2000	Base Pattern[2]	M 51-70	62%	117%	157%	76%
2000	M67-C33 Pattern[3]	M 51-70	63%	117%	157%	75%
2000	Milk Only Pattern[4]	M 51-70	69%	116%	159%	73%
2000	Base Pattern[2]	F19-30	80%	156%	157%	76%
2000	M67-C33 Pattern[3]	F19-30	82%	155%	157%	75%
2000	Milk Only Pattern[4]	F19-30	89%	155%	159%	73%
2200	Base Pattern[2]	M 14-18	68%	234%	184%	83%
2200	M67-C33 Pattern[3]	M 14-18	69%	233%	184%	81%
2200	Milk Only Pattern[4]	M 14-18	75%	232%	186%	79%
2200	Base Pattern[2]	M 31-50	68%	146%	184%	83%
2200	M67-C33 Pattern[3]	M 31-50	69%	146%	184%	81%
2200	Milk Only Pattern[4]	M 31-50	75%	145%	186%	79%
2400	Base Pattern[2]	M 19-30	71%	150%	201%	89%
2400	M67-C33 Pattern[3]	M 19-30	73%	149%	201%	88%
2400	Milk Only Pattern[4]	M 19-30	78%	149%	203%	86%
2600	Base Pattern[2]	M 19-30	74%	176%	226%	90%
2600	M67-C33 Pattern[3]	M 19-30	76%	176%	227%	88%
2600	Milk Only Pattern[4]	M 19-30	82%	175%	229%	86%
2800	Base Pattern[2]	M 14-18	79%	288%	246%	97%
2800	M67-C33 Pattern[3]	M 14-18	80%	288%	246%	95%
2800	Milk Only Pattern[4]	M 14-18	86%	287%	248%	93%
3000	Base Pattern[2]	M 19-30	81%	194%	254%	97%
3000	M67-C33 Pattern[3]	M 19-30	82%	194%	254%	96%
3000	Milk Only Pattern[4]	M 19-30	88%	193%	256%	94%
3200	Base Pattern[2]	M 14-18	81%	324%	254%	99%
3200	M67-C33 Pattern[3]	M 14-18	83%	324%	254%	98%
3200	Milk Only Pattern[4]	M 14-18	88%	323%	256%	95%

[1] All Patterns include 3 cup equivalents from the Milk Group. [2] Base Pattern is 52% milk, 45% cheese, and 1-2% yogurt.
[3] M67-C33 Pattern is 67% milk and 33% cheese. [4] Milk only Pattern is 100% milk.