

2020 Dietary Guidelines Advisory Committee: DRAFT - Part D. Chapter 14: USDA Food Patterns For Individuals Ages 2 Years and Older

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This chapter includes questions examined by the Data Analysis
Food Pattern Modeling Working Group

[DietaryGuidelines.gov](https://www.dietaryguidelines.gov)

LIST OF QUESTIONS

Are changes to the USDA Food Patterns needed based on the relationships identified in the systematic reviews?

If so, how well do USDA Food Pattern variations meet nutrient recommendations for each stage of life?

If nutrient needs are not met, is there evidence to support supplementation and/or consumption of fortified foods to meet nutrient adequacy?

FOOD PATTERN MODELING METHODOLOGY

Food pattern modeling is a way to evaluate the impact of specific changes in amounts or types of foods and beverages in a dietary pattern on meeting food group recommendations and nutrient needs to inform development of sample dietary patterns for Americans that reflect established existing health-promoting patterns or novel patterns that were examined in systematic reviews.



Final protocols and draft conclusion statements available at [DietaryGuidelines.gov](https://www.dietaryguidelines.gov)

Part D. Chapter 14: USDA Food Patterns Ages 2+

METHODOLOGY

- Analytic framework and food modeling process presented at March meeting
- Developed nutrient profiles specific for each age group:
 - 2-3 years
 - 4-18 years
 - 19-70 years
 - 71+ years
- Age-specific nutrient profiles based on proportional intake of an item cluster for each age grouping
- Applied nutrient profiles to evaluate patterns against nutritional goals (RDA or AI) by age-sex group

RESULTS OF FOOD PATTERN MODELING

EXERCISES: Draft Conclusion Statement Part 1

Are Changes to the USDA Food Patterns Needed Based on the Relationships Identified in the Systematic Reviews?

- No major changes to the existing 3 USDA Food Patterns were needed based on the relationships identified in the systematic reviews conducted by the Committee.
 - Healthy U.S.-Style Eating Pattern
 - Healthy Vegetarian Eating Pattern
 - Healthy Mediterranean-Style Eating Pattern

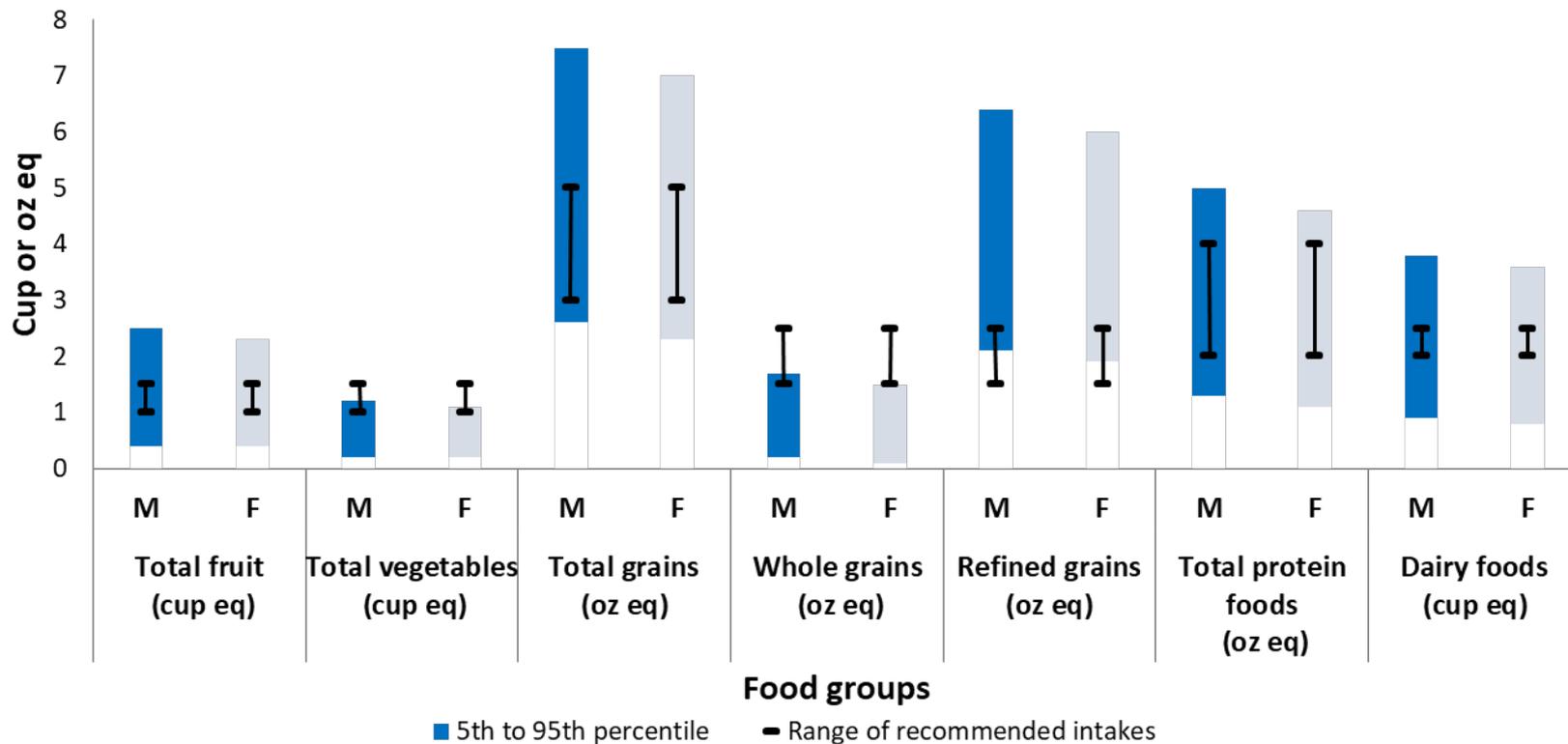
RESULTS OF FOOD PATTERN MODELING

EXERCISES: Draft Conclusion Statement Part 2

How Well Do USDA Food Pattern Variations Meet Nutrient Recommendations for Each Stage of Life?

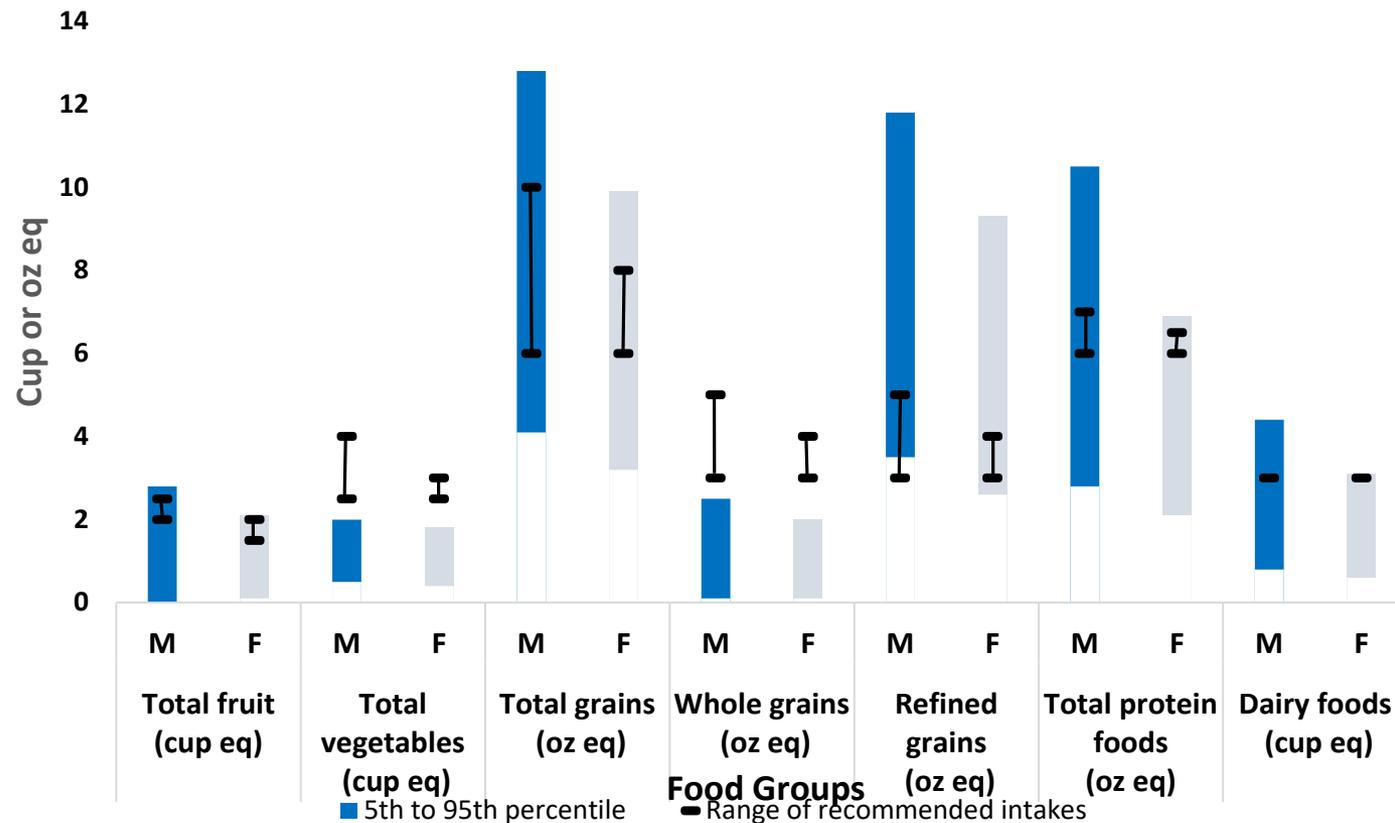
- The 3 USDA Food Patterns meet the RDA or AI goals and stay within limits for the UL or the CDRR target for the majority of nutritional goals for ages 2 years and older, including women who are pregnant or lactating
- Will present data primarily on the Healthy US Style Pattern today

Range of Recommended Food Group Amounts in the Healthy U.S. Style Pattern Compared to the 5th to 95th Percentiles of Intake in the Population of Children Ages 2 to 3 years



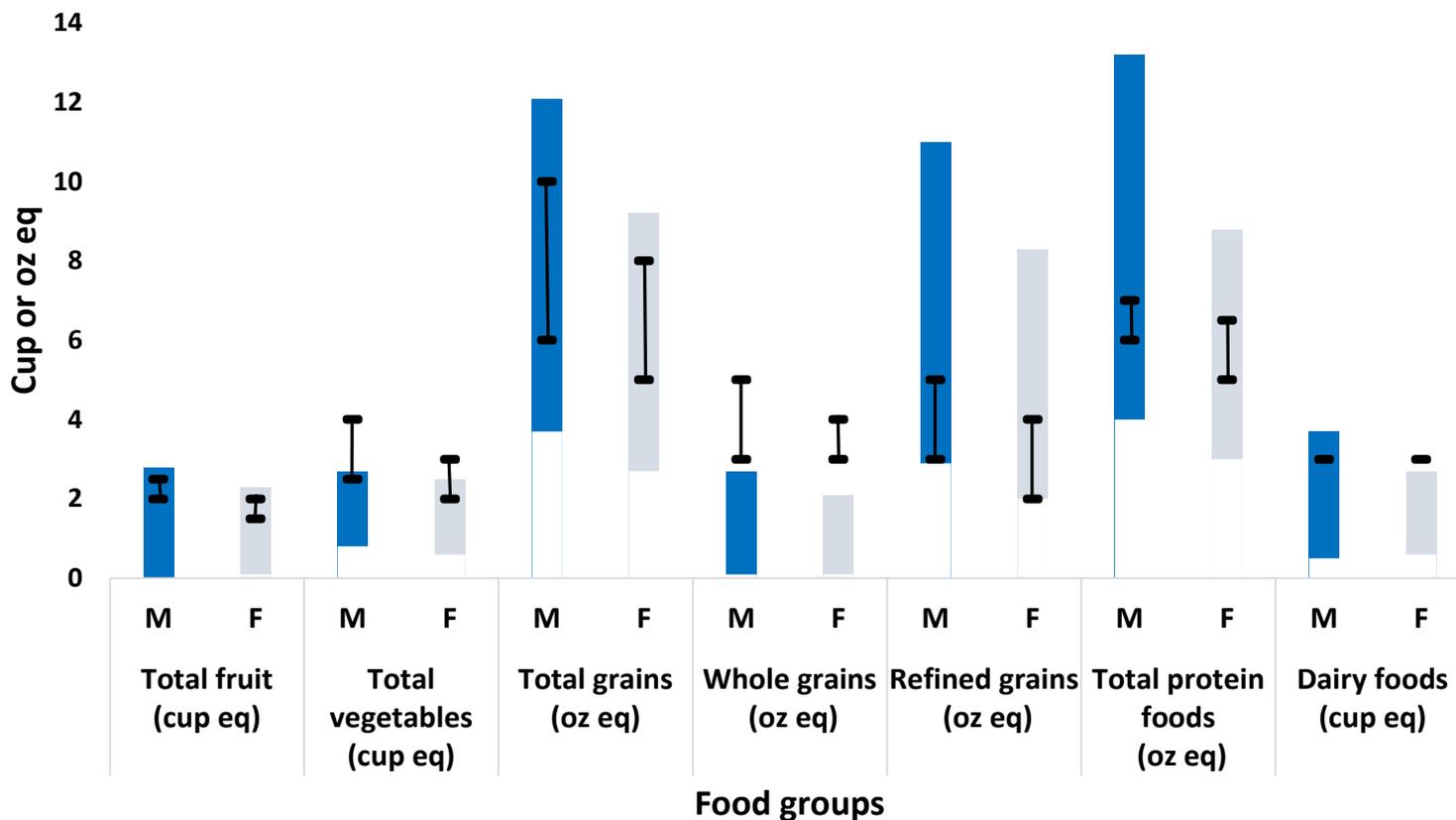
Source: Food Group Intake Distributions, WWEIA NHANES 2013-2016. Prepared by NCI, 2019

Range of Recommended Food Group Amounts in the Healthy U.S. Style Pattern Compared to the 5th to 95th Percentiles of Intake in the Population of Adolescents Ages 14 to 18 years



Source: Food Group Intake Distributions, WWEIA NHANES 2013-2016. Prepared by NCI, 2019

Range of Recommended Food Group Amounts in the Healthy U.S. Style Pattern Compared to the 5th to 95th Percentiles of Intake in the Population of Adults Ages 19+.



■ 5th to 95th percentile ■ Range of recommended intakes

Source: Food Group Intake Distributions, WWEIA NHANES 2013-2016. Prepared by NCI, 2019

**Part D. Chapter 14: USDA Food Patterns Ages 2+
2020 Dietary Guidelines Advisory Committee: Meeting on Draft Report**

Table 14.1 Healthy U.S.-Style Food Pattern: Comparison to Nutrient Goals for Select Energy Levels

Calorie Level	1,000	1,200	1,400	1,600	1,600	1,800	1,800	1,800	2,000	2,000	2,200	2,200	2,400
Age-sex group for comparison	M/F 1-3	F 4-8	M 4-8	F 9-13	F 51+	M 9-13	F 14-18	F 31-50	F 19-30	M 51+	M 14-18	M 31-50	M 19-30
Protein (%kcal)	17%	20%	19%	20%	21%	19%	19%	19%	18%	18%	18%	18%	18%
Carbohydrate (%kcal)	54%	53%	54%	51%	51%	53%	53%	53%	52%	52%	53%	53%	52%
Fiber, total dietary (14g/1000kcal)	99%	103%	105%	109%	109%	110%	110%	111%	106%	106%	110%	111%	108%
Total lipid (fat) (%kcal)	31%	30%	29%	30%	30%	30%	30%	30%	32%	32%	31%	31%	32%
Saturated fat (%kcal)	7%	7%	7%	7%	7%	7%	7%	7%	8%	8%	8%	7%	8%
Cholesterol (%DG)	28%	43%	54%	67%	65%	68%	68%	66%	73%	73%	81%	79%	87%
Minerals													
Calcium (%RDA)	111%	98%	102%	93%	101%	96%	96%	125%	127%	106%	102%	132%	136%
Iron (%RDA)	106%	89%	108%	154%	149%	176%	94%	76%	78%	176%	153%	203%	221%
Magnesium (%RDA)	214%	173%	201%	130%	102%	140%	93%	110%	118%	87%	95%	97%	108%
Potassium (%AI)	88%	95%	107%	128%	121%	130%	141%	132%	140%	107%	126%	117%	120%
Sodium (%CDRR)	65%	77%	88%	83%	55%	91%	71%	60%	63%	63%	80%	69%	74%
Vitamins													
Vitamin E (%RDA)	84%	83%	93%	74%	58%	82%	60%	64%	71%	71%	74%	78%	84%
Vitamin D (%RDA)	39%	41%	45%	55%	69%	56%	56%	69%	70%	70%	60%	72%	75%
Choline (%AI)	88%	91%	108%	88%	83%	92%	86%	87%	92%	71%	73%	77%	82%

Table 14.1 Healthy U.S.-Style Food Pattern: Comparison to Nutrient Goals for Select Energy Levels, cont.

Calorie Level	1,000	1,200	1,400	1,600	1,600	1,800	1,800	1,800	2,000	2,000	2,200	2,200	2,400
Age-sex group for comparison	M/F 1-3	F 4-8	M 4-8	F 9-13	F 51+	M 9-13	F 14-18	F 31-50	F 19-30	M 51+	M 14-18	M 31-50	M 19-30
Protein (%kcal)	17%	20%	19%	20%	21%	19%	19%	19%	18%	18%	18%	18%	18%
Carbohydrate (%kcal)	54%	53%	54%	51%	51%	53%	53%	53%	52%	52%	53%	53%	52%
Fiber, total dietary (14g/1000kcal)	99%	103%	105%	109%	109%	110%	110%	111%	106%	106%	110%	111%	108%
Total lipid (fat) (%kcal)	31%	30%	29%	30%	30%	30%	30%	30%	32%	32%	31%	31%	32%
Saturated fat (%kcal)	7%	7%	7%	7%	7%	7%	7%	7%	8%	8%	8%	7%	8%
Cholesterol (%DG)	28%	43%	54%	67%	65%	68%	68%	66%	73%	73%	81%	79%	87%
Minerals													
Calcium (%RDA)	111%	98%	102%	93%	101%	96%	96%	125%	127%	106%	102%	132%	136%
Iron (%RDA)	106%	89%	108%	154%	149%	176%	94%	76%	78%	176%	153%	203%	221%
Magnesium (%RDA)	214%	173%	201%	130%	102%	140%	93%	110%	118%	87%	95%	97%	108%
Potassium (%AI)	88%	95%	107%	128%	121%	130%	141%	132%	140%	107%	126%	117%	120%
Sodium (%CDRR)	65%	77%	88%	83%	55%	91%	71%	60%	63%	63%	80%	69%	74%
Vitamins													
Vitamin E (%RDA)	84%	83%	93%	74%	58%	82%	60%	64%	71%	71%	74%	78%	84%
Vitamin D (%RDA)	39%	41%	45%	55%	69%	56%	56%	69%	70%	70%	60%	72%	75%
Choline (%AI)	88%	91%	108%	88%	83%	92%	86%	87%	92%	71%	73%	77%	82%

Table 14.2B Healthy U.S.-Style Pattern Comparison to Goals for Women Who Are Pregnant or Lactating, Ages 19 to 30 years

Calorie Level	2,000	2,400	2,600	2,400	2,400
Life stage for comparison	pregnant (1st trimester)	pregnant (2nd trimester)	pregnant (3rd trimester)	lactating (0-6 mo post part)	lactating (7-12 mo post part)
Protein (%kcal)	18%	18%	17%	18%	18%
Carbohydrate (%kcal)	52%	52%	53%	52%	52%
Fiber, total dietary (14g/1000kcal)	106%	111%	119%	111%	108%
Total lipid (fat) (%kcal)	32%	32%	32%	32%	32%
Minerals					
Calcium (%RDA)	127%	136%	141%	136%	136%
Iron (%RDA)	52%	65%	73%	196%	196%
Magnesium (%RDA)	105%	123%	134%	139%	139%
Potassium (%AI)	125%	141%	152%	146%	146%
Sodium (%CDRR)	63%	74%	79%	74%	74%
Vitamins					
Vitamin A (%RDA)	123%	137%	149%	81%	81%
Vitamin E (%RDA)	71%	84%	92%	67%	67%
Vitamin D (%RDA)	70%	75%	75%	75%	75%
Choline (%AI)	87%	100%	104%	82%	82%
Folate, DFE (%RDA)	86%	108%	122%	130%	130%

Table 14.2B Healthy U.S.-Style Pattern Comparison to Goals for Women Who Are Pregnant or Lactating, Ages 19 to 30 years, cont.

Calorie Level	2,000	2,400	2,600	2,400	2,400
Life stage for comparison	pregnant (1st trimester)	pregnant (2nd trimester)	pregnant (3rd trimester)	lactating (0-6 mo post part)	lactating (7-12 mo post part)
Protein (%kcal)	18%	18%	17%	18%	18%
Carbohydrate (%kcal)	52%	52%	53%	52%	52%
Fiber, total dietary (14g/1000kcal)	106%	111%	119%	111%	108%
Total lipid (fat) (%kcal)	32%	32%	32%	32%	32%
Minerals					
Calcium (%RDA)	127%	136%	141%	136%	136%
Iron (%RDA)	52%	65%	73%	196%	196%
Magnesium (%RDA)	105%	123%	134%	139%	139%
Potassium (%AI)	125%	141%	152%	146%	146%
Sodium (%CDRR)	63%	74%	79%	74%	74%
Vitamins					
Vitamin A (%RDA)	123%	137%	149%	81%	81%
Vitamin E (%RDA)	71%	84%	92%	67%	67%
Vitamin D (%RDA)	70%	75%	75%	75%	75%
Choline (%AI)	87%	100%	104%	82%	82%
Folate, DFE (%RDA)	86%	108%	122%	130%	130%

Nutrient Goals not Met

Iron: The patterns provide < 90% of the RDA for females ages 4 to 8 years, 19 to 30 years, 31 to 50 years, and < 75% for women who are pregnant.

Vitamin D: The patterns achieve 30 to 45% of the RDA for children younger than age 8 years and approximately 55 to 70% the RDA for the rest of the population.

Vitamin E: The patterns generally provide < 80% of the RDA for Vitamin E, except for children younger than age 8 years, where 85 to 98% of the RDA is achieved.

Choline: The patterns generally provide less than 85% of the Adequate Intake for choline.

Comparison of Food Groups between 3 Styles: 2,000 kcal

FOOD GROUP (units)	Healthy US	Vegetarian	Mediterranean
FRUITS (cup eq/day)	2	2	2.5
VEGETABLES (cup eq/day)	2.5	2.5	2.5
GRAINS (oz eq/day)	6	6.5	6
Whole grains (oz eq/ day)	3	3.5	3
Refined grains (oz eq/ day)	3	3	3
PROTEIN FOODS (oz eq/day)	5.5	3.5	6.5
Subgroups (Protein Foods Subgroup Amounts in Oz Eq per Week)	-	-	-
Meats, Poultry and Eggs	25		26
Eggs only (Vegetarian)		3	
Seafood	8		15
Legumes as protein (Vegetarian)		6	
Nuts, Seeds and Soy	5.5	15	4.5
DAIRY (cup eq/day)	3	3	2
OILS (grams/day)	27	27	27
Remaining Calories for Other Uses (kcal)	230	252	155

Comparison of Food Groups between 3 Styles: 2,000 kcal, cont.

FOOD GROUP (units)	Healthy US	Vegetarian	Mediterranean
FRUITS (cup eq/day)	2	2	2.5
VEGETABLES (cup eq/day)	2.5	2.5	2.5
GRAINS (oz eq/day)	6	6.5	6
Whole grains (oz eq/ day)	3	3.5	3
Refined grains (oz eq/ day)	3	3	3
PROTEIN FOODS (oz eq/day)	5.5	3.5	6.5
Meats, Poultry and Eggs (<u>Oz Eq/Week</u>)	25		26
Eggs only (Vegetarian) (<u>Oz Eq/Week</u>)		3	
Seafood (<u>Oz Eq/Week</u>)	8		15
Legumes as protein (Vegetarian) (<u>Oz Eq/Week</u>)		6	
Nuts, Seeds and Soy (<u>Oz Eq/Week</u>)	5.5	15	4.5
DAIRY (cup eq/day)	3	3	2
OILS (grams/day)	27	27	27
Remaining Calories for Other Uses (kcal)	230	252	155

Table D14.4. Comparison to Goals between the 3 USDA Food Patterns at the 2,000-Calorie level

Age-sex group for comparison	Healthy US Female 19 to 30 y	Vegetarian Female 19 to 30 y	Mediterranean-Style Female 19 to 30 y
Protein (%kcal)	18%	16%	19%
Carbohydrate (%kcal)	52%	56%	53%
Fiber (14g/1000kcal)	108%	<u>125%</u>	110%
Total lipid (fat) (%kcal)	32%	31%	31%
Saturated fat (%kcal)	8%	8%	7%
Cholesterol (%DG)	75%	<u>39%</u>	75%
Calcium (%RDA)	128%	134%	99%
Iron (%RDA)	79%	<u>91% (51%*)</u>	80%
Vitamin E (%RDA)	70%	73%	70%
Vitamin D (%RDA)	52%	37%	50%
Vitamin B-12 (%RDA)	260%	164%	266%
Choline (%AI)	86%	<u>71%</u>	83%

RESULTS OF FOOD PATTERN MODELING

EXERCISES: Draft Conclusion Statement Part 3

If Nutrient Needs Are Not Met, Is There Evidence to Support Supplementation and/or Consumption of Fortified Foods to Meet Nutrient Adequacy?

- Evidence supports supplementation and fortification for:
 - Iron for females during adolescence and pregnancy
 - Vitamin D for all age-sex groups
 - Folic acid (periconception and first trimester)

DISCUSSION

- Most Americans would benefit from shifting current food choices to healthy, nutrient-dense choices across and within all food groups
 - How to change food intake behaviors
 - Cost and access to nutrient-dense foods
- Energy balance must be a consideration given the high prevalence of overweight and obesity in our nation

DISCUSSION, cont.

Continue to build on FPM life stage approach

- Identify life stage transition points when the potential for changes are likely to be detrimental or lead to higher risk dietary patterns
- Allows proactive public health strategies to anticipate “at risk” periods
- Support maintenance of healthy intakes that start early in life but decline over time
- Foods that individuals should eat over the lifespan are remarkably consistent
- Adapt to include other factors

SUMMARY: Draft Evidence-Based Advice to USDA and HHS

- Continue to recommend established USDA Food Patterns: Healthy U.S.-Style, Healthy Vegetarian, and Healthy Mediterranean-Style
- Core components of all 3 USDA Food Patterns:
 - Fruits, vegetables, legumes, whole grains, nuts and seeds
 - Protein and fats from nutrient-rich food sources
 - Limited amounts of added sugars, solid fats, and sodium
 - Discretionary calories: A small amount of energy remains for additional saturated fats, added sugars, alcohol or other sources of energy
- Help the public continue to shift dietary intakes in healthy directions including strategies for maintaining energy balance

DRAFT - Part D. Chapter 14: USDA Food Patterns For Individuals Ages 2 Years and Older USDA/HHS Staff Who Supported this Chapter



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2020 Dietary Guidelines Advisory Committee: Meeting on Draft Report