2020 Dietary Guidelines Advisory Committee: DRAFT - Part D. Chapter 8: Dietary Patterns

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This chapter includes questions examined by the Dietary Patterns Subcommittee

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LIST OF QUESTIONS

1. What is the relationship between dietary patterns consumed and risk of cardiovascular disease (CVD)?

2. What is the relationship between dietary patterns consumed and growth, size, body composition, and risk of overweight and obesity (GSBCO)?

3. What is the relationship between dietary patterns consumed and risk of type 2 diabetes (T2DM)?

4. What is the relationship between dietary patterns consumed and bone health?

5. What is the relationship between dietary patterns consumed and risk of certain types of cancer?

6. What is the relationship between dietary patterns consumed and neurocognitive health (Neuro)?

7. What is the relationship between dietary patterns consumed and sarcopenia?

8. What is the relationship between dietary patterns consumed and all-cause mortality (ACM)?

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METHODOLOGY

- Questions 1 through 3 were answered by:
  - updating an existing NESR systematic review (i.e., dietary patterns in children and adolescents),
  - using existing NESR systematic reviews (i.e., dietary patterns and adults), and
  - conducting new NESR systematic reviews (i.e., diets based on macronutrient distribution).

- Questions 4 through 6 were answered by updating existing NESR systematic reviews conducted by the 2015 Committee

- Questions 7 and 8 were answered by conducting new NESR systematic reviews

Final protocols and draft conclusion statements available at DietaryGuidelines.gov
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REVIEW OF THE SCIENCE

- 23 draft conclusion statements across the 8 questions

- Nearly 500 articles were included in the NESR systematic reviews

- For dietary patterns, most conclusions revealed consistency across questions and were graded from Strong to Limited
  - The majority were graded Moderate

- For diets based on macronutrient distribution, most conclusions revealed insufficient evidence is available to determine the relationship to health outcomes.
  - One conclusion was Limited, while the rest were Grade Not Assignable

- Most evidence was found for middle-aged adults than other age groups
  - This is likely a function of endpoint outcomes of interest presenting later in life (e.g., sarcopenia, all-cause mortality, cardiovascular disease)
  - Most evidence was generalizable to the U.S. population, including those at higher risk of overweight or obesity

- Many studies examined were prospective cohort studies, and randomized controlled trials were included in most of the reviews

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DISCUSSION - Overview

- The evidence base for associations between dietary patterns and specific health outcomes has grown considerably since the previous reviews by the 2015 Dietary Guidelines Advisory Committee

- Many dietary patterns were identified in the evidence base with the most common ones defined using indices or scores, such as HEI-2015, DASH, Mediterranean, or vegetarian patterns, and data-driven approaches

DISCUSSION – Overview, cont.

- For adults, the association between dietary patterns and…

  …All-cause mortality and cardiovascular disease was strong

  …Growth, size, body composition, and risk of overweight and obesity; type 2 diabetes; bone health; and post-menopausal breast cancer and colorectal cancer was moderate

- For adults, the association between dietary patterns and neurocognitive health and cancers of the prostate and lung were limited.

- For adults, insufficient evidence was available to evaluate dietary patterns and sarcopenia.

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DISCUSSION – Dietary pattern components commonly identified in conclusion statements as having positive association with health, for adults

Dietary Pattern Components in the Committee's Conclusion Statements that are Associated with the Health Outcomes of Interest

Component	ACM	CVD	GSBCO	T2DM	Bone Health	Colorectal Cancer	Breast Cancer (Post-menopausal)	Lung Cancer	Neuro
Fruits	X	X	X	X	X	X	X	X	X
Vegetables	X	X	X	X	X	X	X	X	X
Whole grains/ cereal	X	X	X	X	X	X	X	X	
Legumes	X	X	X		X	X		X	X
Nuts	X	X			X				X
Low-fat dairy	X	X	X		X	X		X	
Fish and/or seafood	X	X	X		X	X		X	X
Unsaturated vegetable oils	X	X	X						X
Lean meat	X					X		X	
Poultry	X								

Dietary Pattern Components in the Committee's Conclusion Statements that are Associated with the Health Outcomes of Interest

Component	ACM	CVD	GSBCO	T2DM	Bone Health	Colorectal Cancer	Breast Cancer (Post-menopausal)	Lung Cancer	Neuro
Red meat	X	X	X	X		X			
Processed meat	X	X	X	X	X	X			
High-fat meat								X	
High fat dairy	X			X					
Animal-based products							X		
Saturated fats		X	X			X			
Sugar sweetened beverages and/or foods	X	X	X	X	X	X			
Refined grains	X	X	X	X			X		
Fried potatoes/French fries and potatoes						X			
Added sugars					X				
Sodium		X	X						

DISCUSSION – Overview, children

- The Committee also considered evidence for dietary patterns and 4 health outcomes in children: overweight and obesity, type 2 diabetes, CVD risk factors, and bone health. Overall, the evidence was limited for overweight and obesity and CVD risk factors

- The characteristics of dietary patterns associated with overweight and obesity and CVD risk factors were similar to adults, including dietary patterns that are higher in fruits, vegetables, whole grains and low-fat dairy and lower in added sugars (for example, sugar-sweetened beverages) and processed meats

- Type 2 diabetes and bone health both had insufficient evidence and were both classified as grade not assignable

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DISCUSSION – Diets Based on Macronutrient Distribution

- 5 of the 8 questions evaluated the relationship between diets based on macronutrient distribution and CVD, GSBCO, T2DM, Sarcopenia, and ACM

- The Committee reviewed studies where at least 1 macronutrient was outside of the acceptable macronutrient distribution range (AMDR) and provide the entire distribution of macronutrients in the diet. Studies did not need to report the foods/food groups consumed

- The AMDR is set by the National Academies of Sciences
    - (For example, in adults: protein, 10 to 35 percent; fat, 20 to 35 percent; carbohydrate, 45 to 65 percent of total energy intake)

- The Committee excluded interventions designed to induce weight loss or treat overweight and obesity through energy-restriction/hypocaloric diets for the purposes of treating additional or other medical conditions.

DISCUSSION – Diets Based on Macronutrient Distribution, cont.

- The resulting literature was ultimately unable to address the specific outcomes of T2DM, GSBCO and ACM, and for CVD the evidence was graded only as Limited

- Approximately 100 articles across the specific outcomes were examined and many challenges were identified in the evidence base

- To adequately address the question of how differences in macronutrient distribution affect key health outcomes, studies should be designed to isolate the effects of macronutrients within the context of a constant dietary pattern

SUMMARY: Draft Evidence-Based Advice to USDA and HHS

- A consistent dietary pattern associated with beneficial outcomes was present across 7 out of 8 the reviewed questions

- Higher intake of vegetables, fruits, legumes, whole grains, low- or non-fat dairy, lean meat, seafood, nuts and unsaturated vegetable oils; low consumption of red and processed meats, sugar-sweetened foods and drinks, and refined grains.

- Dietary patterns associated with adverse or detrimental outcomes included higher intake of red and processed meats, sugar-sweetened foods and beverages, and refined grains.

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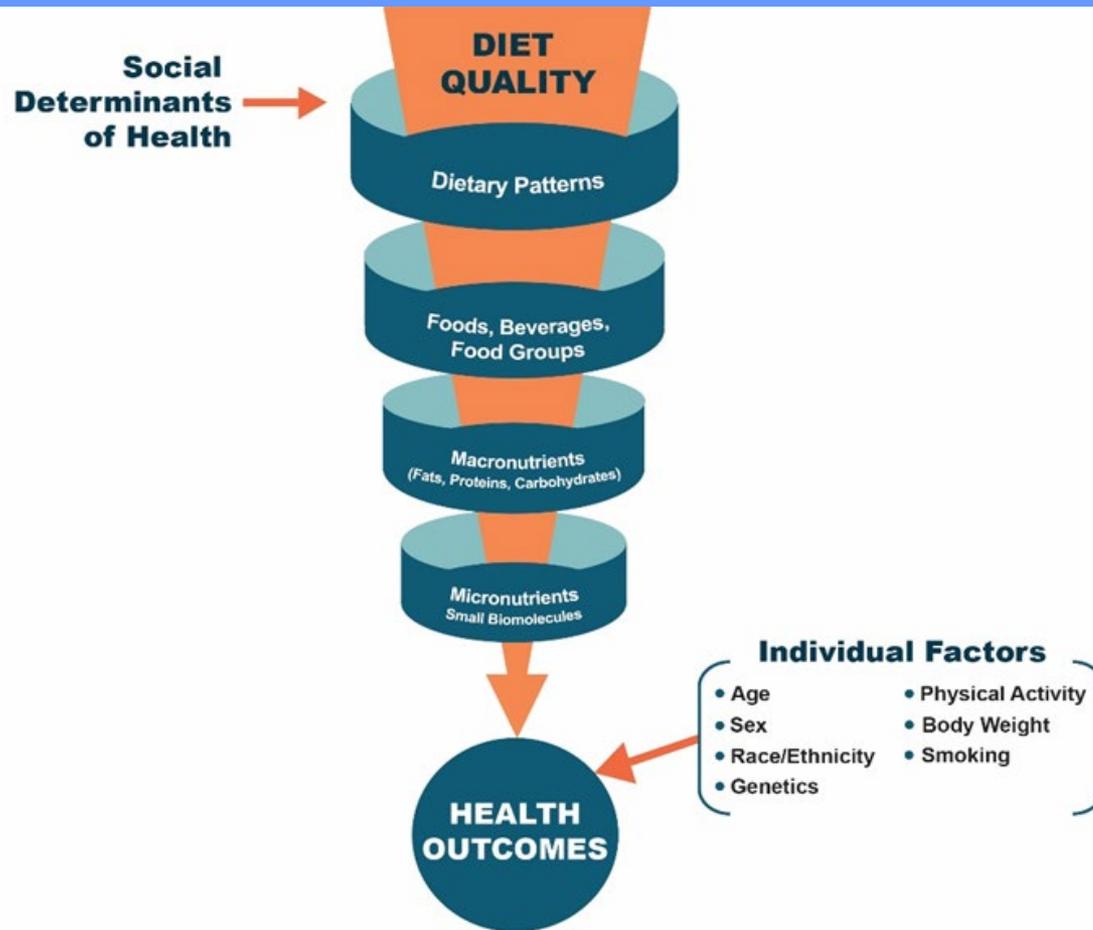
This figure depicts the connection between dietary patterns and its component parts. It demonstrates how food, beverages, food groups, macronutrient and micronutrients are components of dietary patterns. Diet quality runs throughout each component of the pattern. As adherence to a healthier dietary pattern increases the pattern can play a protective role in health, and conversely, less healthy patterns can negatively influence health. The figure also recognizes that social determinants of health, such as food access, food security, settings and environments can play a role in influencing the diet quality of a dietary pattern. Additionally, individual factors also impact health outcomes.

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SUMMARY: Draft Evidence-Based Advice to USDA and HHS, cont.

- The Committee's reviews supports the use of recommending dietary patterns to the U.S. population

- The Committee's review conveys a public health message reflecting key foods across studies that in common comprise a healthy diet that promotes optimum growth and development while minimizing risk factors underlying the onset of chronic diseases

- These public health messages are vital in an era undergoing an epidemic of non-communicable diseases, including obesity, type 2 diabetes, CVD, cancer, sarcopenia, and dementias, and that pose potential further immunological risks associated with infectious diseases as well

- These chronic diseases often have their origins early in life, highlighting the importance of initiating and maintaining a healthy diet across the life course

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DRAFT - Part D. Chapter 8: Dietary Patterns
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