

# 2020 Dietary Guidelines Advisory Committee: Dietary Patterns Subcommittee

**Carol Boushey**

Jamy Ard

Lydia Bazzano

Steven Heymsfield

Elizabeth Mayer-Davis

Joan Sabaté

Linda Snetselaar

Linda Van Horn

Chair/Vice Chair Rep: Barbara Schneeman

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

# Subcommittee Status

- NESR staff screening articles and preparing evidence portfolios
  - Over 113,000 articles have been or are in the process of being screened and additional searches underway
  - Data extraction and assessed risk of bias for ~190 articles and additional extraction underway
- Subcommittee reviewing evidence and drafting conclusions
  - Dietary patterns and all-cause mortality
- Refining and prioritizing remaining work
  - Dietary patterns and sarcopenia
  - Dietary patterns and cancer
  - Dietary patterns and neurocognitive health
  - Dietary patterns and bone health

**Protocols for questions discussed in this presentation are available at [DietaryGuidelines.gov](https://DietaryGuidelines.gov)**

# Key Definitions

- **Dietary Patterns** – the quantities, proportions, variety, or combination of different foods, drinks, and nutrients (when available) in diets, and the frequency with which they are habitually consumed.

# Follow-Up from Meeting 3

- For all questions - The inclusion and exclusion criteria for the intervention/exposure were edited to clarify how diets based on macronutrient distribution in which one or more proportions fall outside of the AMDR will be considered.
- See the updated protocol for dietary patterns and all-cause mortality at DietaryGuidelines.gov:
  - <https://www.dietaryguidelines.gov/dietary-patterns-and-all-cause-mortality-0>

# Question

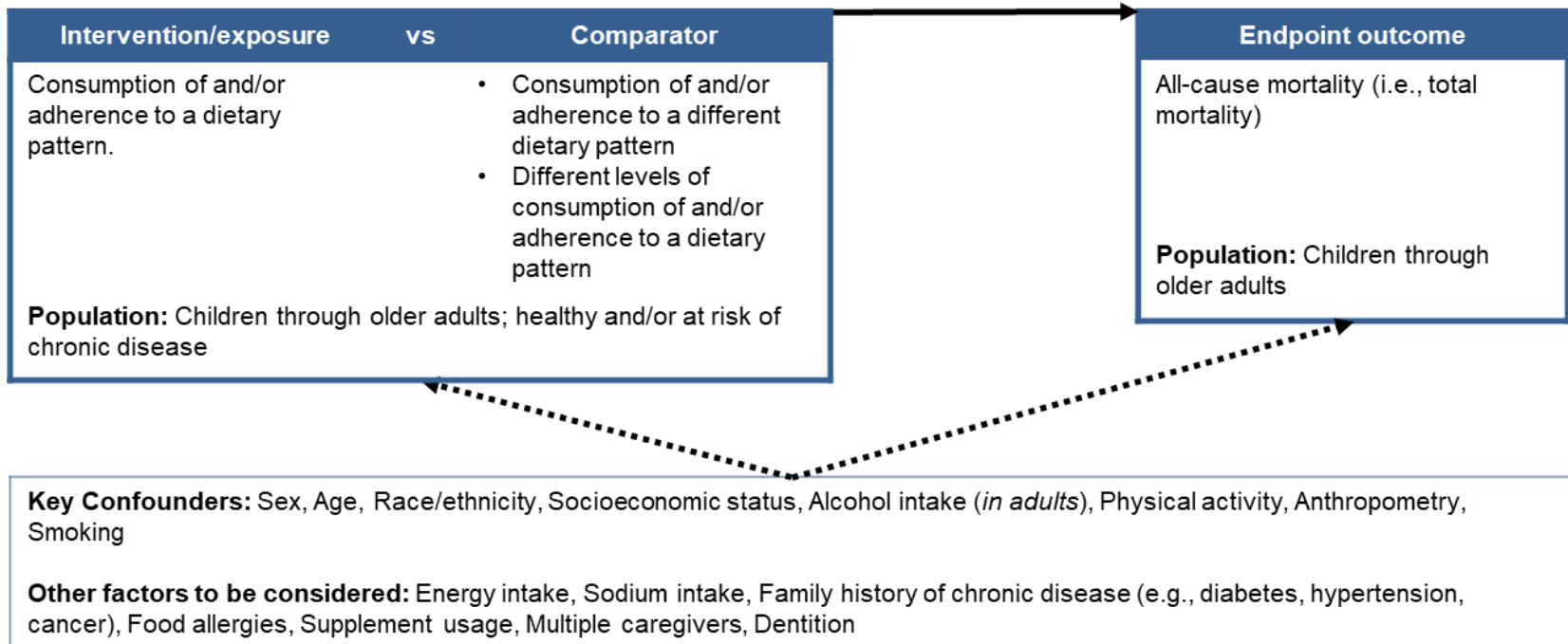
What is the relationship between dietary patterns consumed and all-cause mortality?

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Approach to Answer Question: NESR Systematic Review

# Analytic Framework: Dietary Patterns and All-Cause Mortality

**All-cause mortality** – the total number of deaths from all-causes during a specific time-period.



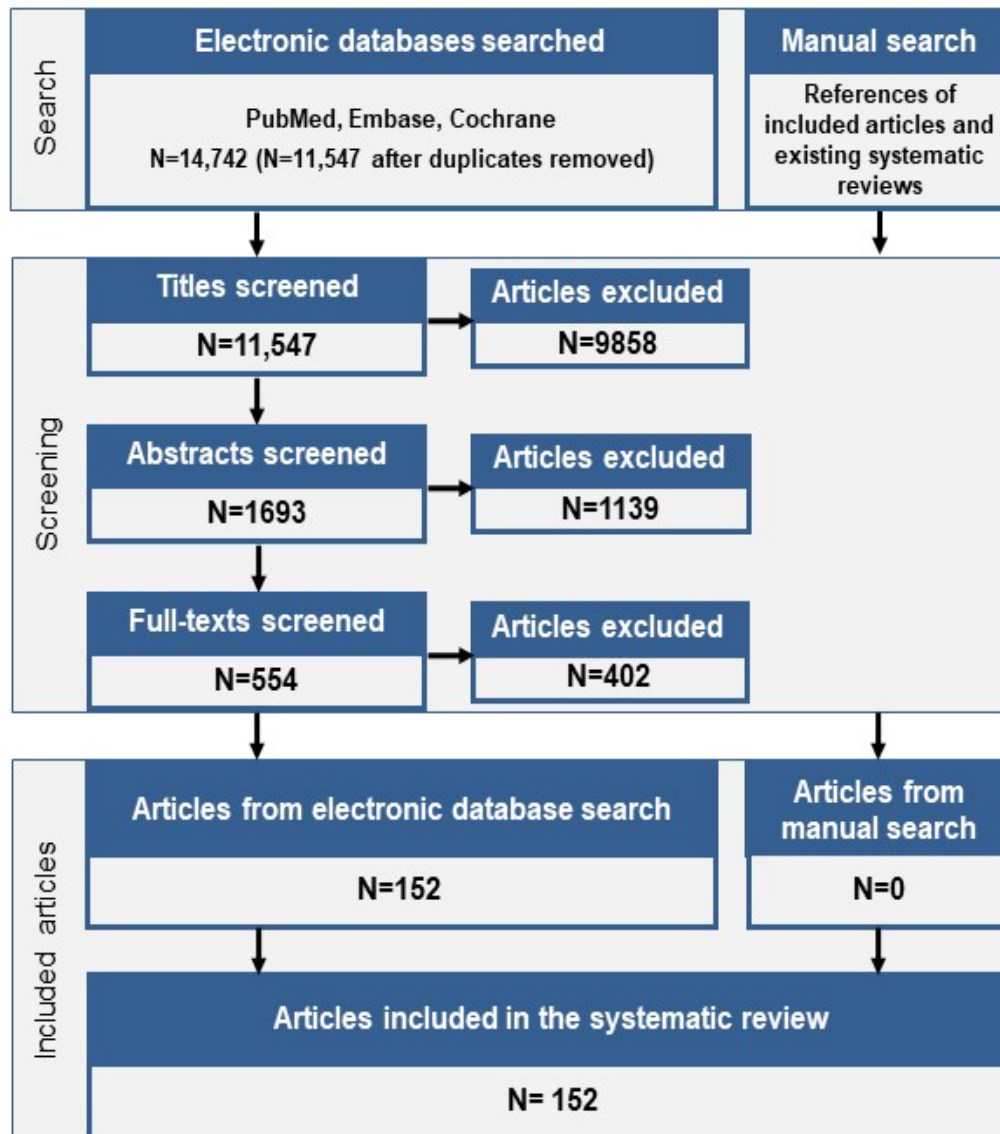
## Legend



The relationship of interest in the systematic review  
Factors that may impact the relationship of interest in the systematic review

**What is the relationship between dietary patterns consumed and all-cause mortality?**  
**2020 Dietary Guidelines Advisory Committee: Meeting 4**

# Literature Search and Screening Results



# Description of the Evidence

- 152 included articles examined the relationship between dietary patterns and all-cause mortality.
- The articles were all prospective cohort study designs and used multiple approaches as follows:
  - 105 used index or score analysis only
  - 18 used factor or cluster analysis only
  - 27 examined the diets based on macronutrient distributions in which at least one macronutrient fell outside of the AMDR.
  - 15 used multiple methods (e.g., both index and factor analyses) or other methods (e.g., vegetarian vs. non-vegetarian diet)



# Summary of the Evidence Synthesis - Themes

- Patterns emphasizing consumption of vegetables, legumes, fruits, nuts, whole grains, fish, lean meat or poultry, and [unsaturated fats relative to saturated fats, either as a ratio of MUFA/SFA or MUFA+PUFA/SFA, or olive oil specifically] were generally associated with decreased risk of all-cause mortality. Notably, there was consistency in particular with the inclusion of fish and/or seafood.
- Of the dietary patterns that included animal-products, protective associations were generally observed with relatively lower consumption of red and processed meat or meat and meat products.

# Summary of the Evidence Synthesis – Themes, continued

- Some of these dietary patterns also included alcoholic beverages in moderation or within specific thresholds.
- The inclusion of white meat: red meat ratio, type and amount of dairy products, and refined carbohydrates/sweets as elements to these patterns was less consistent across the body of evidence.
- Among the dietary patterns that included higher consumption of white meat relative to red or processed meat, low-fat dairy relative to high-fat dairy, and lower (relative to higher) refined carbohydrates and sweets tended to show reduced risk of all-cause mortality.

# Summary of the Evidence Synthesis, continued

- Higher adherence to dietary patterns with common labels such as “Mediterranean”, dietary-guidelines related (e.g., “Healthy Eating Index”, “DASH score”) or “plant-based” were generally protective against all-cause mortality risk.
  - This highlights that high-quality dietary patterns comprised of nutrient-dense foods, regardless of the label, were associated with decreased all-cause mortality risk.
  - Approximately 90% of the included articles reported significant associations, and the findings were in favor of a high-quality diet and lower risk of all-cause mortality.

# Summary of the Evidence Synthesis – Key confounders

- Although all included studies were prospective cohort studies, the majority of articles reported adjustment for most key confounders with exception to race/ethnicity.
  - Due to lack of reporting, it is difficult to determine the impact that race/ethnicity specifically may have in the relationship between dietary patterns and all-cause mortality.

# Summary of the Evidence Synthesis – Indices/Scores

- The largest segment of evidence in this systematic review used index or score analysis to assess dietary patterns.
- Within these articles, 78 different indices or scores were used to assess dietary patterns, including:
  - 30 “Mediterranean” indices, with the Mediterranean Diet Score (MDS) (Trichopolou, 2003) most frequently used
  - 7 “Healthy Eating Index” or “Dietary Guidelines for Americans” indices (e.g., HEI-2010)
  - 1 “DASH” score (Fung, 2008)
  - 16 Country-specific indices (e.g., Dutch Healthy Diet Index 2015)
  - 24 Other indices or scales (e.g., Recommended Food Score)

# Summary of the Evidence Synthesis-Indices/Scores, continued

- Across all indices or scores, the following items or components are generally (but not exclusively) considered:
  - Vegetables (with or without potatoes),
  - Legumes,
  - Fruit,
  - Nuts,
  - Whole Grains, Grains, unspecified,
  - Refined Grains,
  - Fish,
  - Meat (though some indices specified this general category further looking specifically at red and processed meats, meat and meat products, white meat: red meat ratio, etc.),
  - Dairy,
  - Sugar Sweetened Beverages,
  - Sweets,
  - Fats, Carbohydrates, Protein,
  - Alcohol, Sodium, and/or
  - Other

# Summary of the Evidence Synthesis – Diets based on macronutrient distribution

- Macronutrient distributions with proportions of energy falling outside of the AMDR for at least one macronutrient were examined in this body of evidence, but results were inconsistent.
- Among these studies,
  - Proportions of CHO reported were both below and above the AMDR
  - Proportions of FAT reported were both below and above the AMDR
  - No studies examined macronutrient distributions in which PRO fell outside of the AMDR

## Summary of the Evidence Synthesis – Diets based on macronutrient distribution, continued

- Comparison of macronutrient distributions with or without the context of the foods/food groups comprising the dietary pattern showed inconsistent findings due to several limitations.
  - The gradient between the macronutrient proportions compared between distributions was small, e.g., 41% vs. 41.7%
  - Methods used to estimate macronutrient intake differed between studies
  - Most proportions reported were only marginally outside of the AMDR due to the variance with which studies defined and applied limits to macronutrient categories



# DRAFT Conclusion Statement

## Conclusion statement

Strong evidence suggests that certain dietary patterns in adults and older adults are associated with decreased risk of all-cause mortality. These dietary patterns were characterized by intake from vegetables, legumes, fruit, nuts, whole grains, fish, lean meat or poultry, and [unsaturated fats relative to saturated fats].

- Of the dietary patterns that included animal-products, protective associations were generally observed with relatively lower consumption of red and processed meat or meat and meat products.
- Some of these dietary patterns also included alcoholic beverages in moderation or within specific thresholds.
- The inclusion of white meat: red meat ratio, type and amount of dairy products, and refined carbohydrates/sweets as elements to these patterns was less consistent across the evidence. However, the dietary patterns that included higher consumption of white meat relative to red or processed meat, low-fat dairy relative to high-fat dairy, and lower (relative to higher) refined carbohydrates and sweets tended to show reduced risk of all-cause mortality.
- Macronutrient distributions with proportions of energy falling outside of the AMDR for at least one macronutrient were examined in this body of evidence, but results were inconsistent.

Insufficient evidence was available to determine the relationship between dietary patterns and all-cause mortality in younger populations (~age <35 years).

**What is the relationship between dietary patterns consumed and all-cause mortality?  
2020 Dietary Guidelines Advisory Committee: Meeting 4**

# Refining and Prioritizing Remaining Work

- Refined dietary patterns and sarcopenia
  - Examining endpoint outcomes, sarcopenia and severe sarcopenia, and excluding articles that only examine intermediate outcomes
- Prioritizing remaining work (cancer, neurocognitive health, and bone health)
  - The subcommittee has discussed prioritizing endpoint outcomes and/or carrying forward existing reviews from the 2015 Advisory Committee.

# Next Steps

- Complete data extraction and risk of bias assessment for dietary patterns and sarcopenia.
- Complete screening of scientific literature for the following questions:
  - Dietary patterns and growth, size, and body composition
  - Dietary patterns and type 2 diabetes
  - Dietary patterns and cardiovascular disease
- Develop a conceptual framework for the subcommittee to facilitate the evidence synthesis based on dietary patterns and their components, which may include foods and beverages, food groups and macronutrient distribution in the context of diet quality.

# Dietary Patterns Subcommittee: Members and Staff



## **Members:**

Carol Boushey  
Jamy Ard  
Lydia Bazzano  
Steven Heymsfield  
Elizabeth Mayer-Davis

Joan Sabaté  
Linda Snetselaar  
Linda Van Horn  
Barbara Schneeman

## **Support Staff:**

Elizabeth Rahavi  
Laural English  
Marlana Bates  
Emily Callahan  
Sudha Venkatramanan

Julie Obbagy  
Gisela Butera  
Clarissa Brown  
Eve Stody (DFO)