

2020 Dietary Guidelines Advisory Committee: Dietary Fats and Seafood

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Topic Areas

- Seafood during pregnancy/lactation and neurocognitive development
- Seafood during childhood/adolescence and neurocognitive development
- Seafood during childhood/adolescence and cardiovascular disease

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

Topic Areas, Continued

- Dietary fats and all-cause mortality
- Dietary fats and cancer
- Dietary fats and cardiovascular disease
- Dietary fats and neurocognitive development/
health

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

Key acronyms

- n-3: Omega-3 fatty acids
- n-6: Omega-6 fatty acids
- PUFA: Polyunsaturated fatty acids
- MUFA: Monounsaturated fatty acids
- EPA: Eicosapentaenoic Acid
- DHA: Docosahexaenoic Acid
- CVD: Cardiovascular disease
- MeHg: Methylmercury

Seafood Questions

What is the relationship between seafood consumption...

1. during pregnancy and lactation and neurocognitive development of the infant?
2. during childhood and adolescence (up to 18 years of age) and neurocognitive development?
3. during childhood and adolescence (up to 18 years of age) and risk of cardiovascular disease?

Approach to Answer Questions: NESR Systematic Review

Key Definitions

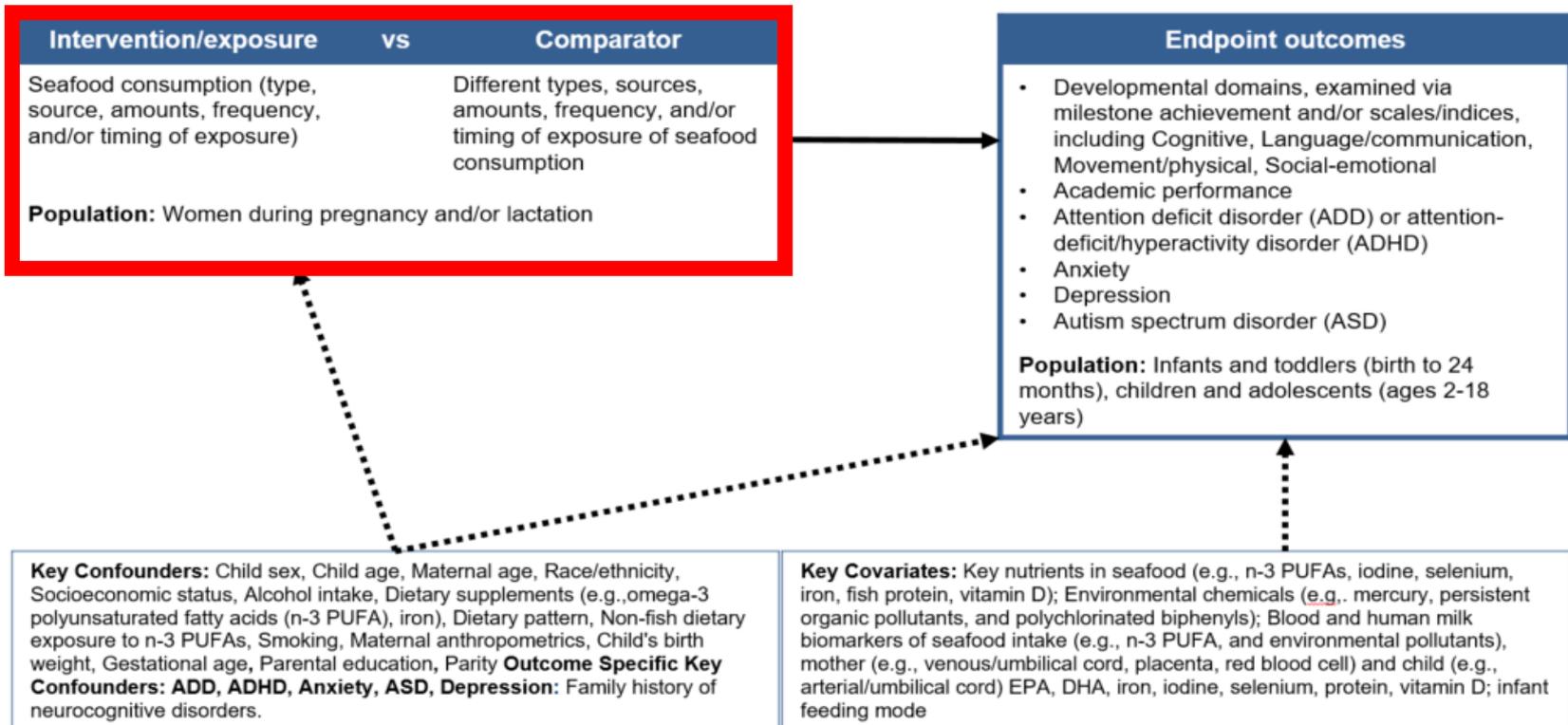
- **Seafood** – Marine animals that live in the sea and in freshwater lakes and rivers. Seafood includes fish (e.g., salmon, tuna, trout, tilapia) and shellfish (e.g., shrimp, crabs, oysters) (Source: 2015-2020 DGA)

Key Definitions

- **Seafood** – The following will be considered in analyses:
 - Type (e.g., salmon, tuna, bass)
 - Source (e.g., sea, fresh water, farmed, wild)
 - Amount/frequency of intake
 - Timing of exposure (e.g., age at intake)

Analytic Framework Maternal seafood intake and child neurocognitive development

Systematic review question: What is the relationship between seafood consumption during pregnancy and lactation and neurocognitive development in infants?



Key definition:

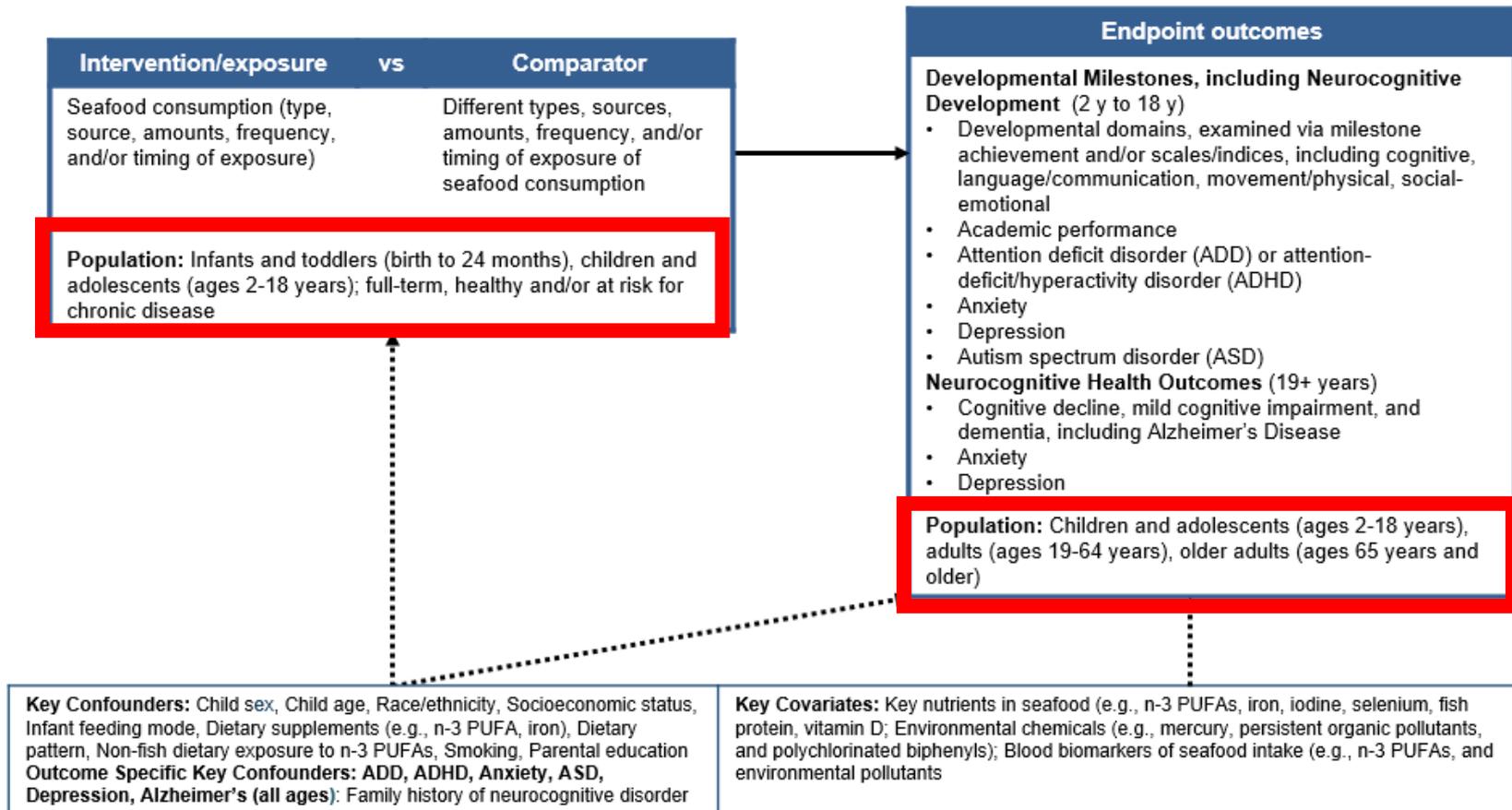
Seafood - Marine animals that live in the sea and in freshwater lakes and rivers. Seafood includes fish (e.g., salmon, tuna, trout, and tilapia) and shellfish (e.g., shrimp, crab, and oysters) (Source: 2015-2020 DGA)

Legend

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

Analytic Framework **Child seafood intake** and neurocognitive development

Systematic review question: What is the relationship between seafood consumption during childhood and adolescence (up to 18 years of age) and neurocognitive development?



Key definition:

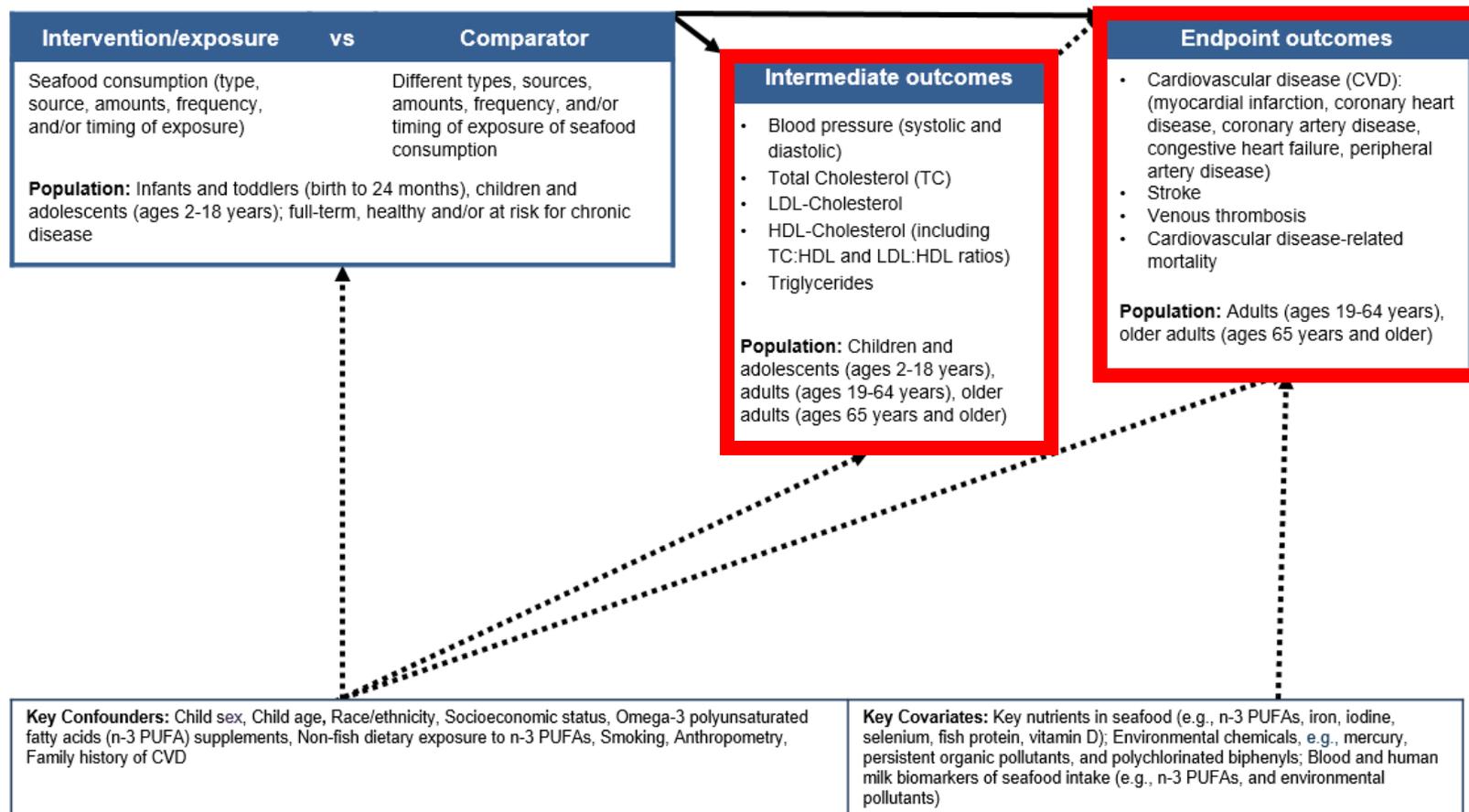
Seafood - Marine animals that live in the sea and in freshwater lakes and rivers. Seafood includes fish (e.g., salmon, tuna, trout, and tilapia) and shellfish (e.g., shrimp, crab, and oysters) (Source: 2015-2020 DGA)

Legend

- > The relationship of interest in the systematic review
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Analytic Framework: Child seafood intake and risk of cardiovascular disease

Systematic review question: What is the relationship between seafood consumption during childhood and adolescence (up to 18 years of age) and risk of cardiovascular disease?



Key definition:

Seafood - Marine animals that live in the sea and in freshwater lakes and rivers. Seafood includes fish (e.g., salmon, tuna, trout, and tilapia) and shellfish (e.g., shrimp, crab, and oysters) (Source: 2015-2020 DGA)

Legend:

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

Inclusion and Exclusion Criteria

- Propose standard criteria be used for:
 - Study Design
 - Publication Status
 - Date of publication (January 2000 – present)
 - Language of Publication
 - Country
 - Health status of participants

Inclusion and Exclusion Criteria

Category	Inclusion Criteria	Exclusion Criteria
Intervention/ exposure	<ul style="list-style-type: none">• Seafood consumption measured prior to outcome assessment<ul style="list-style-type: none">• Type• Source• Amount/frequency of intake• Timing of exposure• Dietary intake (e.g., from food frequency questionnaires, dietary recall, fish/seafood screeners) may be validated with biomarkers for PUFA or MeHg, but not substituted	<ul style="list-style-type: none">• No measure of seafood consumption (i.e., studies that only examined biomarkers for consumption)• Omega-3 supplement studies which do not evaluate seafood consumption• Studies evaluating infant formula with DHA and/or EPA supplementation
Comparator	<ul style="list-style-type: none">• Different types, sources, and/or amounts of seafood consumed; Different frequency of and/or timing of seafood consumption	

Dietary Fats Questions

What is the relationship between types of dietary fat consumed and ...

1. neurocognitive development (birth to 18 years) or neurocognitive health (for those 18 years & older)?
2. risk of cardiovascular disease?
3. risk of certain types of cancer?
4. risk of all-cause mortality?

Approach to Answer Questions: NESR Systematic Review

Key Definitions

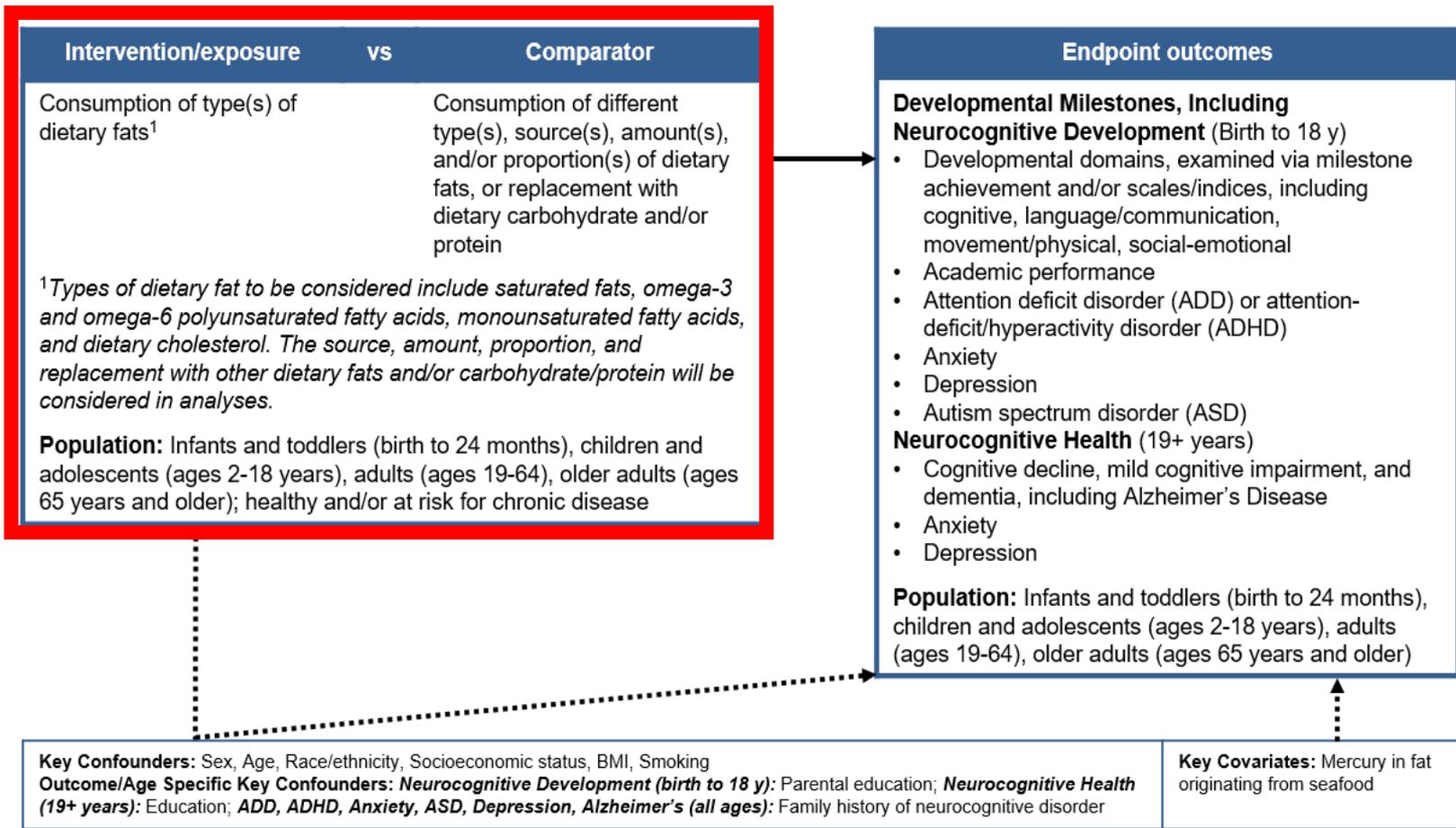
- **Types of Dietary Fat** – Types of dietary fat to be considered include
 - Saturated Fatty Acids (SFA)
 - Monounsaturated Fatty Acids (MUFAs)
 - Polyunsaturated Fatty Acids (PUFAs)
 - Omega-3 polyunsaturated fatty acids (n-3 PUFAs), e.g., Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA)
 - Omega-6 polyunsaturated fatty acids (n-6 PUFAs)
 - Cholesterol

Key Definitions

- **Types of Dietary Fat** – The following will be considered in analyses:
 - Source (e.g., dairy, eggs, meat, plants)
 - Amount
 - Proportion (e.g., n-3/n-6 PUFA ratio)
 - Replacement (e.g., replacing SFA with PUFA, replacing SFA with carbohydrate/protein)

Analytic Framework: Dietary fat and neurocognitive outcomes

Systematic review question: What is the relationship between types of dietary fat consumed and neurocognitive development (birth to 18 years) or neurocognitive health (for those 18 years and older)?

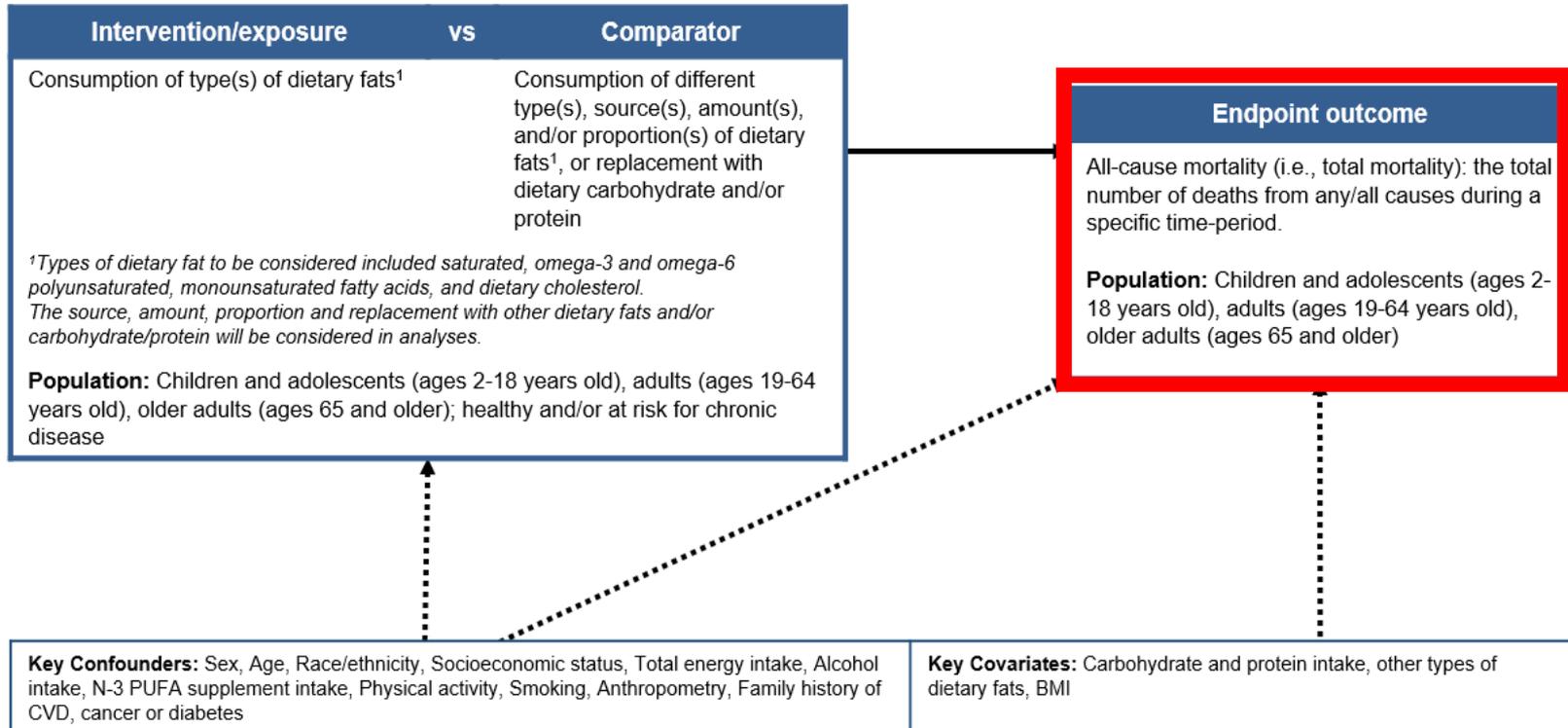


Legend

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Analytic Framework: Dietary fat and all-cause mortality

Systematic review question: What is the relationship between types of dietary fat consumed and all-cause mortality?



Key definitions

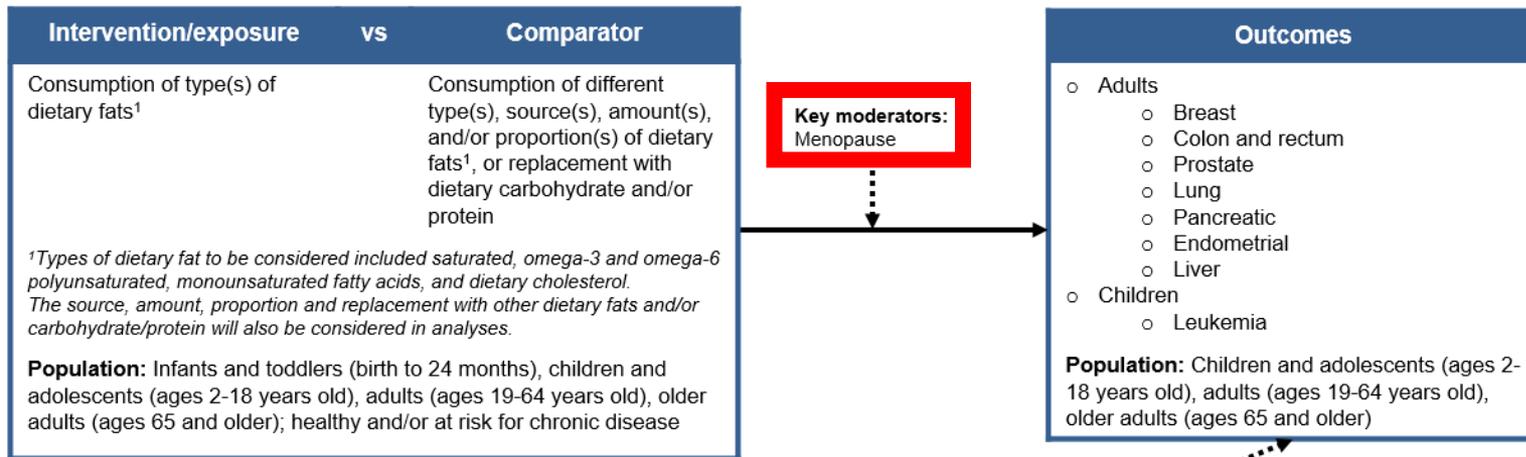
All-cause mortality - the total number of deaths from any/all causes during a specific time-period. This does not include cause-specific mortality (e.g., cancer-related deaths, CVD-related deaths).

Legend

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

Analytic Framework: Dietary fat and risk of certain types of cancer

Systematic review question: What is the relationship between types of dietary fat consumed and risk of certain types of cancer?



Key moderators:
Menopause

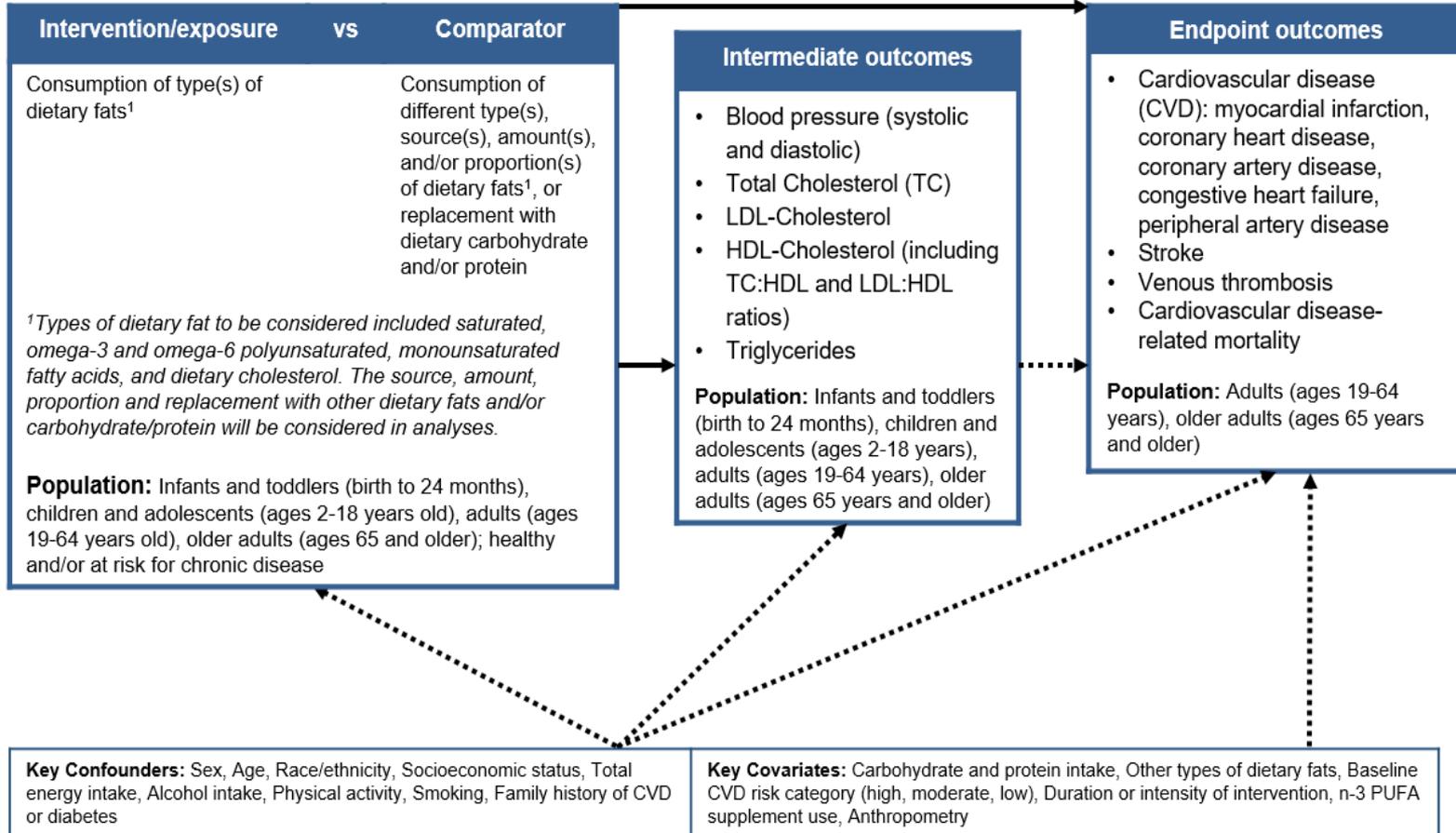
Key Confounders: Sex (EXCEPT breast, prostate, and endometrial cancers), Age, Race/ethnicity, Socioeconomic status, Alcohol intake, Physical activity, Anthropometry, Smoking, Family history of the cancer outcome
Outcome Specific Key Confounders: **Breast and Endometrial:** Hormonal contraceptive, age of menopause; **Colon and rectum:** Inflammatory bowel disease; **Lung:** Lung disease (e.g., emphysema, chronic bronchitis, tuberculosis, pneumonia), environmental exposures to lung carcinogens; **Liver:** Chronic viral hepatitis, liver disease

Legend

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Analytic Framework: Dietary fat and risk of cardiovascular disease

Systematic review question: What is the relationship between types of dietary fat consumed and risk of cardiovascular disease?



Legend

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Inclusion and Exclusion Criteria

- Propose standard criteria be used for:
 - Study Design
 - Publication Status
 - Date of publication (January 2000 – present)
 - Language of Publication
 - Country
 - Health status of participants

Inclusion and Exclusion Criteria

Category	Inclusion Criteria	Exclusion Criteria
Intervention/ exposure	<ul style="list-style-type: none">• Consumption of type(s) of dietary fats<ul style="list-style-type: none">• Types of dietary fat to be considered included saturated, omega-3 and omega-6 polyunsaturated, monounsaturated fatty acids, and dietary cholesterol• The source, amount, proportion, and replacement with other dietary fats and/or carbohydrate/protein will also be considered in analyses	<ul style="list-style-type: none">• Studies that do not assess consumption of type(s) of dietary fats (e.g., studies that only examined biomarkers for consumption)• Studies that only assess total fat intake or overall macronutrient composition• Studies that only assess trans fat• Studies that examine food products not widely available to U.S. consumers• Studies that exclusively assess intake of fat from supplements
Comparator	<ul style="list-style-type: none">• Consumption of different type(s), source(s), amount(s), and/or proportion(s) of dietary fats, or replacement with dietary carbohydrates and/or protein	

Next Steps

- Seafood Questions
 - Neurocognitive outcome questions
 - Complete screening and extracting data
 - Risk of cardiovascular disease question
 - Conduct literature searches
- Dietary Fat Questions
 - Conduct literature searches

2020 Dietary Guidelines Advisory Committee: Dietary Fats and Seafood Subcommittee



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