

2020 Dietary Guidelines Advisory Committee: Frequency of Eating

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DietaryGuidelines.gov

Status of Questions

- Implementing the plan:
 - Frequency of eating and growth, size, body composition, overweight, obesity
 - Frequency of eating and cardiovascular disease
 - Frequency of eating and type 2 diabetes
 - Frequency of eating and gestational weight gain
 - Frequency of eating and post-partum weight loss
- Draft conclusions:
 - Frequency of eating and all-cause mortality

All protocols discussed in this presentation are available at [DietaryGuidelines.gov](https://www.dietaryguidelines.gov)

Key Definitions

- **Frequency of Eating**

- Number of daily **Eating Occasions**

- Defined as ingestive event:

- preload, meals, or snacks
 - beverage (energy or non-energy yielding) or food

- **Secondary Eating**: eating occasions that are not identified as the primary activity

- Screen time, eating while driving, reading, etc.

- **Timing of Daily Eating Occasions**

- Ingestive events over 24 hour period

- Weekday or weekend
 - Meal skipping
 - **Fasting**: absence of an ingestive event, yielding energy, ≥ 8 hours during a waking period in a 24 hour period
 - **Time Restricted Eating**: set pattern of eating occasions restricted by time

* bold/caps have definitions

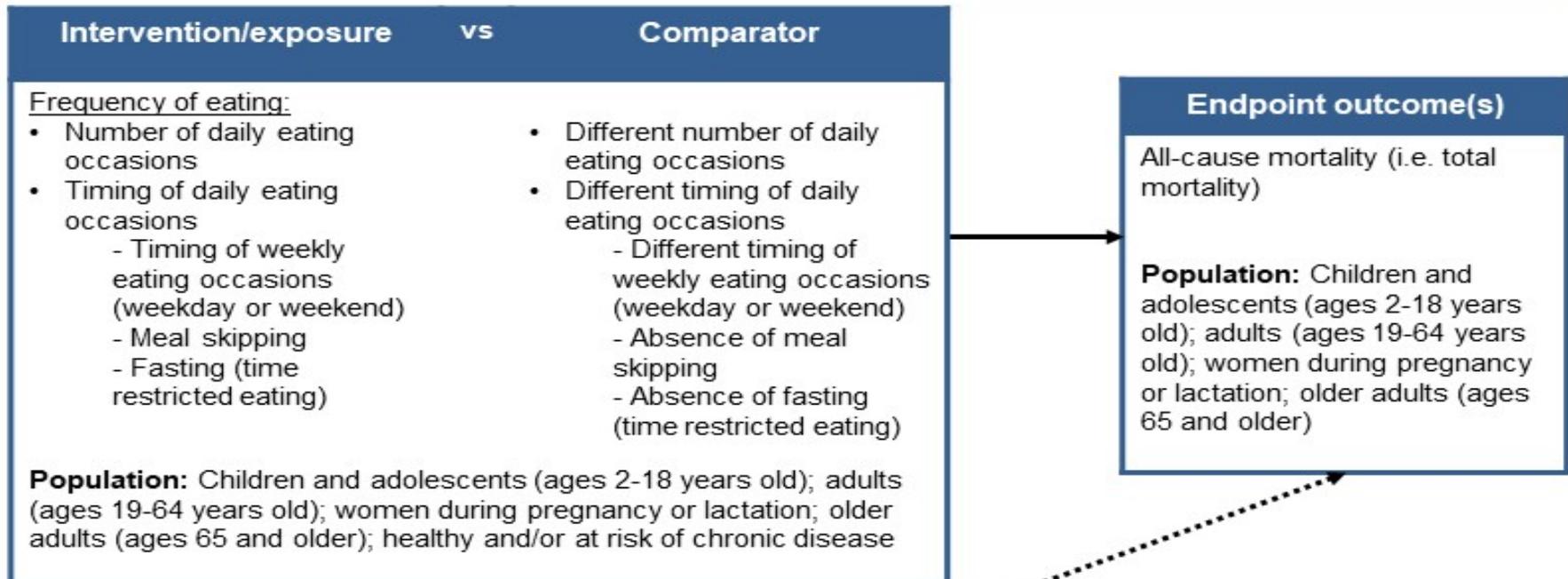
Question: FOE and all-cause mortality

What is the relationship between frequency of eating and all-cause mortality?

Approach to Answer Question: NESR Systematic Review

Analytic Framework

Systematic review question: What is the relationship between the frequency of eating and all-cause mortality?



Key Confounders: Sex, Age, Race/ethnicity, Habitual eating frequency, Smoking, Anthropometry

Other factors to be considered: Socioeconomic status, Physical activity, Cultural practices, **Total energy intake**, Diet energy density, Energy state of the diet (restriction/surplus), Energy balance (total energy intake/total energy expenditure), **Chrononutrition factors** (time of day, (consistency of) habitual eating frequency, and duration between ingestive events and/or ingestive periods), Portion size, Macronutrient content, Location of eating occasion, Eating environment (who you eat with, work/school/exercise schedule), Holiday eating (seasonal), Sleep schedule (shift work), **Secondary eating**, Dentition, Hydration status, Pregnancy status, Pubertal status, Menopausal status, Biochemical changes

Inclusion and Exclusion Criteria

- Propose standard criteria be used for:
 - Study Design
 - Publication Status
 - Language of Publication
 - Country
 - Health Status of Participants

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Inclusion and Exclusion Criteria

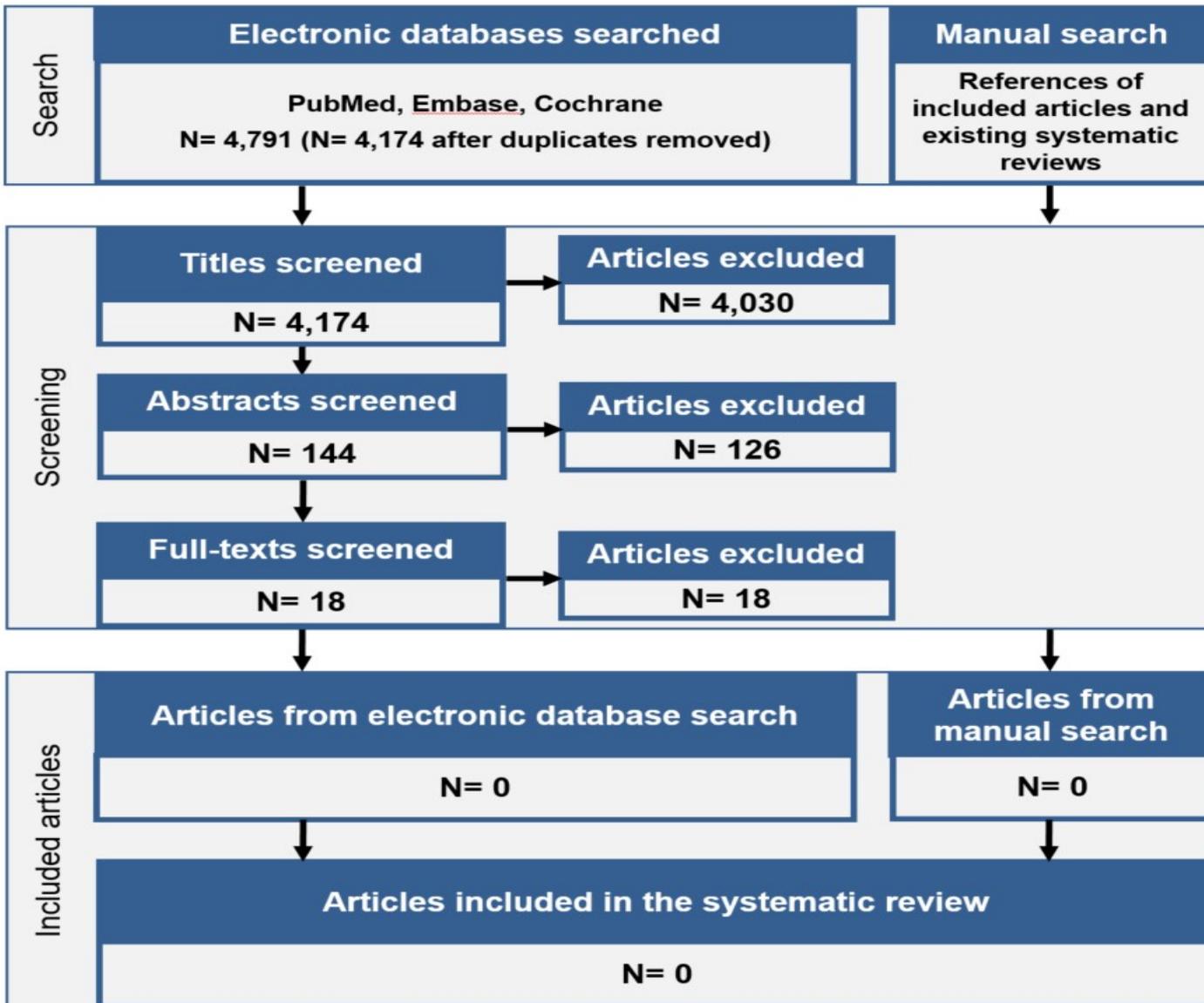
| Category | Inclusion Criteria | Exclusion Criteria |
|--------------------------------------|--|---|
| Intervention/ exposure | <p><u>Frequency of eating:</u></p> <ul style="list-style-type: none"> • Number of daily eating occasions • Timing of daily eating occasions <ul style="list-style-type: none"> ○ Timing of weekly eating occasions (weekday or weekend) ○ Meal skipping ○ Fasting (time restricted eating) | <ul style="list-style-type: none"> • Studies that only examine frequency of intake of a single food, beverage or category of foods or beverages (i.e. frequency of milk consumption, frequency of seafood consumption) • Studies that do not have eating occasions across the day |
| Age of study participants | <ul style="list-style-type: none"> • Age at intervention/exposure and outcome: <ul style="list-style-type: none"> ○ Children and adolescents (2-18 years) ○ Adults (19-64 years) ○ Older adults (ages 65 and older) | <ul style="list-style-type: none"> • Age at intervention/exposure and outcome: <ul style="list-style-type: none"> ○ Infants and toddlers (0-24 months old) |
| Date of publication | <ul style="list-style-type: none"> • January 2000 – June 2019 | <ul style="list-style-type: none"> • Articles published prior to or after January 2000 – June 2019 |

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Inclusion and Exclusion Criteria

| Category | Inclusion Criteria | Exclusion Criteria |
|--|---|--|
| Health Status of Study Participants | <ul style="list-style-type: none">• NESR Standard Criteria | <ul style="list-style-type: none">• NESR Standard Criteria• Studies that exclusively enroll subjects post bariatric surgery |
| Dietary Data Collection | <ul style="list-style-type: none">• A minimum of 3 days of dietary data collection and on at least 2 occasions | <ul style="list-style-type: none">• N/A |
| Size of Study Groups | <ul style="list-style-type: none">• 15 participants for studies using within-subject analyses, or• 30 participants for studies using between-subject analysis, or• A power calculation included | <ul style="list-style-type: none">• N/A |

Literature Search and Screening Results



Reasons for Exclusion

- 18 full text articles were screened and excluded
- 3 articles would have been included for all other criteria except the dietary data collection criteria
 - The 3 articles only had 1 dietary data collection time-point
- In order to ensure a reliable measure of habitual or typical frequency, the dietary data collection criteria states that a minimum of 3 days of dietary data collection and on at least 2 occasions is needed for inclusion.

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Description and Summary of the Evidence

- No studies published between January 2000 and June 2019 met the inclusion criteria for this systematic review.

DRAFT Conclusion Statement and Grade

Conclusion statement

No evidence is available to draw a conclusion about the relationship between the frequency of eating and all-cause mortality.

Grade: Grade Not Assignable

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Next Steps

- Complete screening of scientific literature for 5 remaining questions:
 - Growth, size, body composition, overweight, obesity
 - Cardiovascular disease
 - Type 2 diabetes
 - Gestational weight gain
 - Post-partum weight loss
- Two NESR analysts are currently independently screening ~35,000 articles for these remaining questions.

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