



Meeting 3

Cardiometabolic Health and Weight Management

Chair: John Jakicic

Members: Wayne Campbell, Loretta DiPietro, Russ Pate, Linda Pescatello, Ken Powell

Experts and Consultants



- Invited experts: None
- Consultants: None

Subcommittee Questions



1. What is the relationship between physical activity and prevention of weight gain?
2. (4) In people with normal blood pressure or pre-hypertension, what is the relationship between physical activity and blood pressure?
3. (2) In adults without diabetes, what is the relationship between physical activity and blood glucose control (e.g., incidence of impaired glucose tolerance, type 2 diabetes mellitus)?
4. (3) Is there a relationship between physical activity and weight control during pregnancy and postpartum?
5. What is the relationship between physical activity and metabolic syndrome, and the components of metabolic syndrome (e.g., blood pressure, lipids, abdominal adiposity)?
6. Does physical activity alter body composition (e.g., lean tissue, fat tissue, intramuscular fat) with weight loss?
7. What is the relationship between physical activity and weight change following clinically meaningful weight loss of at least 5%?
8. What is the relationship between physical activity and inflammatory markers?
9. Is there evidence that physical activity adds to the magnitude of weight loss achieved with caloric restriction?

Question 1

- What is the relationship between physical activity and prevention of weight gain?
- Source of evidence to answer question:
 - Original Research

Analytical Framework

Systematic Review Question

What is the relationship between physical activity and prevention of weight gain?

Target Population

Adults, ages 18 and older

Comparison

Adults who participate in varying levels of physical activity, including no reported physical activity

Intervention/Exposure

All types and intensities of physical activity including lifestyle activities, leisure activities, and sedentary behavior

Endpoint Health Outcomes

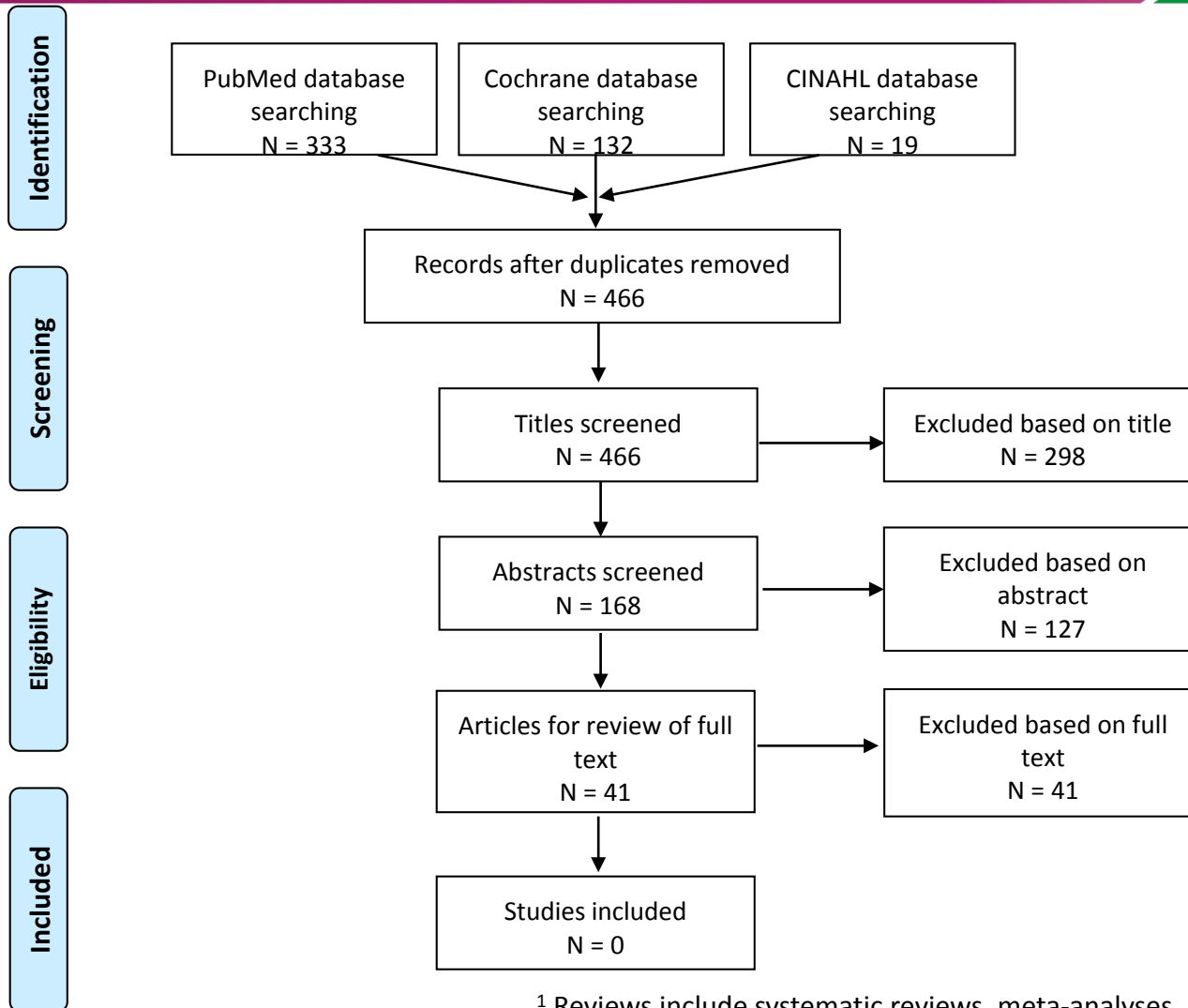
- Weight
- Weight change
- Weight control
- Weight gain
- Weight maintenance
- Weight regulation
- Weight stability
- Weight status

Key Definitions

Clinically significant weight loss: A change in body weight of 5% or more.

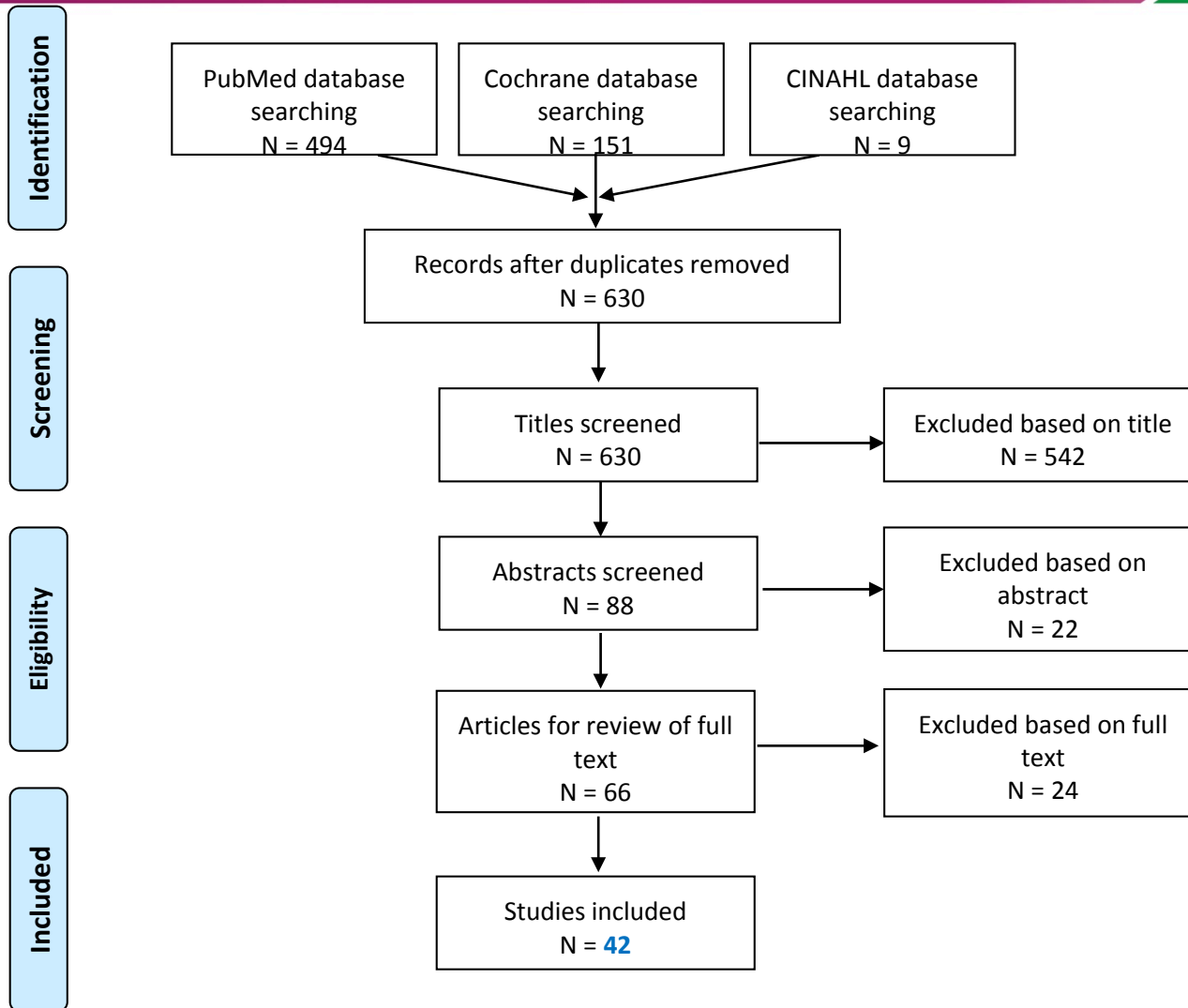
Excessive weight gain: A change in body weight of more than 2 kg per year (reference: Hill) or 10 kg per decade (reference: Williamson). Or, a weight change of $\geq 3\%$ (reference: Stevens).

Search Results Q1: High Quality Reviews¹



¹ Reviews include systematic reviews, meta-analyses, and pooled analyses.

Search Results Q1: Original Research



Description of the Evidence



- 42 studies appear to provide data that is pertinent to addressing Critical Question 1
 - 31 studies report only on physical activity
 - 6 studies report only on sedentary behavior
 - 5 studies report on both physical activity and sedentary behavior

Description of the Evidence



- 36 studies reporting on physical activity
 - 29 studies (81%) appear to show an association between higher activity and prevention/less weight gain or lower body weight
 - Need to further examine if there are unique study characteristics that may explain the lack of an association in 7 of the studies.

Description of the Evidence



- 11 studies reporting on sedentary behavior
 - 7 studies (64%) appear to show an association between lower sedentary behavior and prevention/less weight gain or lower body weight.

Description of the Evidence



- Studies will be examined further to determine if:
 - Statements can be made regarding sex, ethnicity, etc. effects
 - Statements can be made regarding dose, intensity, frequency, or mode targets for physical activity to prevent or minimize weight gain
 - Statements can be made regarding sedentary targets to prevent or minimize weight gain

Draft Conclusion Statement



- **Conclusion Statement:**
 - Engagement in greater amounts of physical activity is associated with prevention or minimizing weight gain.

- **Grade: Moderate to Strong**

Draft Conclusion Statement



- **Conclusion Statement:**
 - Engagement in lower amounts of sedentary behavior may be associated with prevention or less weight gain or lower body weight.

- **Grade: Limited**

Draft Research Recommendations

- There is a need for studies that quantify physical activity and sedentary behavior using objective methods. Within these studies will be the ability to examine “patterns” of physical activity and sedentary behavior that are associated with prevention or minimizing weight gain.
- There is a need for randomized controlled trials to identify dose, intensity, and frequency thresholds that are associated with prevention or minimizing weight gain in adults.
- There is a need for studies to systematically examine different modes of physical activity in relation to preventing or minimizing weight gain in adults.

Committee Discussion

- What is the relationship between physical activity and prevention of weight gain?