



Meeting 2

Subcommittee 5 Exposure

Chair: Bill Kraus

Members: Wayne Campbell, Kathy Janz, John Jakicic, Ken Powell

Question 1 & 2

- 1. What is the relationship between physical activity and all-cause mortality?**
- 2. What is the relationship between physical activity and cardiovascular disease mortality?**

Analytical Framework



Systematic Review Questions

What is the relationship between physical activity and all-cause mortality?
What is the relationship between physical activity and cardiovascular disease mortality?

Target Population

Adults, 18 years and older

Comparison

Adults who participate in various levels of physical activity

Exposure

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

Endpoint Health Outcomes

Incidence of:

- All-cause mortality
- Cardiovascular disease mortality

Key Definitions

- Dose-response: The relation between the dose of physical activity and the health or fitness outcome of interest.
- Dose: The amount of physical activity performed by the subject or participants. The dose can be measured in terms of a single component of activity (e.g., frequency, duration, intensity) or as the total amount.
- Intensity: Refers to the work-rate being performed or the magnitude of the effort required to perform an activity or exercise. Intensity can be expressed either in *absolute* or *relative* terms (relative to body mass..

Common Inclusion/ Exclusion Criteria



- **Language**
 - **Exclude: Studies that do not have full text in English**
- **Publication Status**
 - **Include: Studies published in peer-reviewed journals, PAGAC-approved reports**
 - **Exclude: Grey literature**
- **Study Subjects**
 - **Exclude: Studies of animals only**

Inclusion/Exclusion Criteria



- **Date of Publication**
 - **Original Research: Include 2006 - Present**
 - **Existing Sources: Include 2006 - Present**
- **Study Subjects**
 - **Include: Adults ages 18 and older**
 - **Exclude: No exclusions based on disease status**
- **Study Design**
 - **Include: Randomized controlled trials, Non-randomized controlled trials, Prospective cohort studies, Retrospective cohort studies, Case-control studies, Before-and-after studies, Systematic reviews, Meta-analyses, PAGAC-Approved reports**
 - **Exclude: Narrative reviews, Commentaries, Editorials, Cross-sectional studies.**
- **Exposure/Intervention**
 - **Include: All types and intensities of physical activity**
 - **Exclude: Missing physical activity, Single, acute session of exercise, Therapeutic exercise, Physical fitness as the exposure, Only used as confounding variable, Sedentary behavior**
- **Outcome**
 - **Include: All-cause mortality, Mortality from cardiovascular disease.**

Draft Search Terms

- **Physical Activity Terms**
 - "Active travel", "Activity bouts", "Aerobic activities", "Aerobic activity", "Anaerobic training", "Cardiorespiratory activity", "Cardiorespiratory fitness", "Cardiovascular activities", "Cardiovascular activity", "Cardiovascular fitness", "Daily steps", "Endurance activities", "Endurance activity", "Energy expenditure", "Exercise", "High intensity activities", "High intensity activity", "Interval training", "Leisure activities", "Leisure activity", "Light intensity activity", "Low intensity activity", "Moderate to Vigorous Activities", "Moderate to Vigorous Activity", "Pedometer", "Physical activity", "Physical conditioning", "Physical endurance", "Physical fitness", "Physical inactivity", "Resistance training", "Sedentary lifestyle", "Sedentary lifestyle", "Sprint interval training", "Step count", "Steps/day", "Strength training", "Walk", "Walking", "Weight lifting", "Weight training", ("High intensity AND training"), "Active commute", "Active commuting", "Moderate Activities", "Moderate Activity", "Vigorous Activities", "Vigorous Activity".
- **Outcome Terms**
 - CVD: "Aortic aneurysm and dissection", "Arteriosclero*", "Arteriosclerosis", "Atherosclero*", "Cardiomyopathies", "Cardiomyopathies", "Cardiomyopathy", "Cerebral-Hemorrhage", "Cerebral Hemorrhages", "Cerebral infarction", "Cerebrovascular diseases", "Cerebrovascular disease", "Coronary artery disease", "Coronary heart disease", "Death, sudden, cardiac", "Heart failure", "Hypertensive heart disease", "Hypertensive renal disease", "Intracerebral Hemorrhage", "Intracerebral Hemorrhages", "Intracranial hemorrhage", "Intracranial hemorrhages", "Ischemic heart diseases", "Ischemic heart disease", "Myocardial ischemia", "Myocardial infarction", "Stroke", "Subarachnoid hemorrhage", "Subarachnoid hemorrhages", "Aortic Aneurysm, Thoracic".
 - Mortality: "Death", "Dying", "Fatal*", "Mortalit*", "Postmortem", "Mortality".

Prioritized Questions



- **Q1.** What is the relationship between physical activity and all-cause mortality?
- **Q2.** What is the relationship between physical activity and cardiovascular disease mortality?
- **Q3.** What is the relation between physical activity and cardiovascular disease incidence?

Prioritized Questions



- **Q4.** What is the relation between step count per day and mortality (all-cause or cause-specific) or disease incidence (e.g., coronary heart disease, type 2 diabetes)?
- **Q5.** What is the relation between bout duration of continuous aerobic physical activity and cardiorespiratory fitness OR health outcomes
- **Q6.** What is the relation between high intensity interval training and reduction in cardiometabolic risk?

Prioritized Questions

- **Q7.** How does the declining basal level of activity influence the volume of physical activity (presumably MVPA) required to maintain a similar level of energy expenditure per day?
- **Q8.** Is cardiorespiratory fitness a modifiable mediator of the benefits of physical activity? Should it be treated as an outcome?

Areas for PAGAC Input or Discussion

- From other SCs want to know about studies that mention
 - Step counts and outcomes
 - Bouts
 - High intensity interval training; sprint interval training
- Fitness as an outcome, mediator: approach
- How deal with the continuum of exposure:
 - Energy; steps; sedentary activity