Technical Overview Purpose

- Describe process to develop the PAGAC Scientific Report
- Describe responsibilities of PAGAC, Federal PAG Staff, and Literature Review Team
- Discuss preferences for level of abstraction detail
- Review results of a background scoping activity
Literature Review Team Overview

- Project Director
- Training and Quality Control (TQC) Team
- Systematic Review (SR) Liaisons
- Librarians
- Abstractors
SYSTEMATIC REVIEW
PROCESS OVERVIEW
2018 Physical Activity Guidelines Advisory Committee Process

RESPONSIBLE PARTY:
P PAGAC
S Subcommittee
L Literature Review Team

SYSTEMATIC REVIEW PROCESS

1. Develop Systematic Review (SR) Questions
   - Develop Topics
   - Develop Questions
   - Prioritize Questions

2. Develop Systematic Review Strategy
   - Develop Analytical Framework
   - Develop Inclusion/Exclusion Criteria
   - Tailor Abstraction Form
   - Develop Search Strategy

3. Search, Screen, and Select Evidence to Review
   - Identify High-Quality Existing Reports, SRs, and Meta-Analyses
   - Describe Existing Sources of Evidence
   - Search for Original Research
   - Screen and Select Evidence for Review

4. Abstract Data and Assess Risk of Bias
   - Abstract Data
   - Assess Risk of Bias

5. Describe the Evidence
   - Draft Components of Evidence Portfolio
   - Review and Approve Components of Evidence Portfolio

6. Complete Evidence Portfolios and Draft Report
   - Complete Evidence Portfolios
   - Draft Scientific Report Chapters
   - Cross-Review other Subcommittee Report Chapters
   - Review and Approve Scientific Report
PAGAC Review and Approval

- The PAGAC is responsible for developing the PAGAC Scientific Report
- The PAGAC will work in several Subcommittees
- The Literature Review Team will work under the direction of the PAGAC Subcommittees and Federal PAG staff
- Subcommittees will present their work to the full PAGAC for ongoing review and approval at public meetings
Ongoing Training and Quality Control Procedures

- **Maximize transparency**
  - Customized web-based data entry database will be used for all data abstraction that tracks all data entry and edits

- **Ensure consistency**
  - Abstractors will participate in a 3-phased training program that culminates with a certification assessment
  - Retraining and recalibration sessions will be provided when necessary, as determined by the TQC Team

- **Minimize bias**
  - Dual independent coding process
  - Quality assurance evaluation (12.5% random coding by TQC team)
DETAILED REVIEW OF SYSTEMATIC REVIEW PROCESS STEPS
2018 Physical Activity Guidelines Advisory Committee Process

RESPONSIBLE PARTY:
- PAGAC
- Subcommittee
- Literature Review Team
PAGAC members will discuss topics to examine
  - Review the current PAG
  - Discuss new physical activity research

Topics will be assigned to Subcommittees
  - Each Subcommittee will likely have more than one topic

Federal staff and PAGAC co-chairs will create Subcommittee organization
Subcommittee members will develop clearly focused SR questions for each topic using the PICO method

<table>
<thead>
<tr>
<th>Population</th>
<th>Who is targeted by the action being recommended? What are the relevant demographic factors?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>What action is being examined? What main intervention or exposure is being examined?</td>
</tr>
<tr>
<td>Comparison</td>
<td>What are the main alternatives to compare with the intervention?</td>
</tr>
<tr>
<td>Outcome</td>
<td>What is the relevant outcomes? What can you hope to accomplish, measure, improve, or affect?</td>
</tr>
</tbody>
</table>
Subcommittee members will rank the SR questions within each topic based on:

- Potential for greatest public health impact
- Potential to inform public health policy and/or programs
- Existence of mature scientific evidence
- Potential generalizability to the population of interest
2018 Physical Activity Guidelines Advisory Committee Process

RESPONSIBLE PARTY:
- **P**: PAGAC
- **S**: Subcommittee
- **L**: Literature Review Team

Systematic Review Process

1. **Develop Systematic Review (SR) Questions**
   - Develop Topics
   - Develop Questions
   - Prioritize Questions

2. **Develop Systematic Review Strategy**
   - Develop Analytical Framework
   - Develop Inclusion/Exclusion Criteria
   - Tailor Abstraction Form
   - Develop Search Strategy

3. **Search, Screen, and Select Evidence to Review**
   - Identify High-Quality Existing Reports, SRs, and Meta-Analyses
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4. **Abstract Data and Assess Risk of Bias**
   - Abstract Data
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5. **Describe the Evidence**
   - Draft Components of Evidence Portfolio
   - Review and Approve Components of Evidence Portfolio

6. **Complete Evidence Portfolios and Draft Report**
   - Complete Evidence Portfolios
   - Draft Scientific Report Chapters
   - Cross-Review other Subcommittee Report Chapters
   - Review and Approve Scientific Report
Analytical Frameworks

Subcommittee members and Literature Review Team will develop analytical frameworks for each SR question
- Presents a visual representation of the search
- Provides definitions for key SR terms
- Ensures that all contributing elements in the causal chain will be examined and evaluated

Subcommittee members will review and approve each analytical framework
**Sample Analytical Framework¹**

**Topic Area**
Acculturation, Diet, and Health In the United States

**Systematic Review Question**
What is the relationship between acculturation, as measured by acculturation scales or proxies for acculturation and body weight/BMI?

**Target Population**
Children (2 to 18 years) and adults, healthy and at risk for chronic disease

**Intervention/Exposure**
Acculturation measured by acculturation scales, or proxies for acculturation (time of living in the US, language preference, place of birth)

**Comparison**
Different levels of acculturation
Examine by age, gender, ethnic/racial group

**Intermediate Outcomes**
- BMI, BMI z-score
- Weight change, % body fat mass
- Child growth indices

**Endpoint Health Outcomes**
Incidence of healthy weight, overweight, obesity

**Key Confounders**
- SES/socioeconomic position
- Age
- Movement from urban to rural areas or vice versa
- Ethnicity/race (subgroups)
- Physical activity
- Nutrient/energy density of diet
- Total energy intake


Inclusion/Exclusion Criteria

- All inclusion and exclusion criteria will be determined *a priori*
  - Literature Review Team will use an inclusion/exclusion template and the analytical framework to draft inclusion and exclusion criteria relevant to the SR
  - Subcommittee members will review, refine, and approve the draft criteria

- Inclusion/exclusion criteria will typically address:
  - Study design
  - Date of publication
  - Publication language
  - Publication status
  - Funding source
  - Study duration
  - Outcomes
  - Size of study groups
  - Study dropout rate
  - Intervention/Exposure
  - Comparison
  - Type, age, and health status of study subjects
Abstraction Form

- Literature Review Team will tailor the standard abstraction form if additional data need to be collected for the SR
- Subcommittee members will review, refine, and approve the tailored abstraction form
Systematic Review Search Strategy

- Literature Review Team will create a draft search strategy for each SR conducted
- Subcommittee members will review, refine, and approve the search strategy
2018 Physical Activity Guidelines Advisory Committee Process

RESPONSIBLE PARTY:
P  PAGAC
S  Subcommittee
L  Literature Review Team
Ways to Answer Systematic Review Questions

- Conducting a *de novo* SR
- Supplementing a *de novo* SR by including one or more high-quality existing reports, SRs, or MAs to partially answer a SR question
- Replacing a *de novo* SR by using one or more high-quality existing reports, SRs, or MAs
Identifying High-Quality Existing Reports, Systematic Reviews, & Meta-Analyses

- Subcommittee members will share existing reports, SRs, or MAs that address the SR question in full or part
- Literature Review Team librarians will identify existing reports and implement the search strategy to identify additional SRs and MAs
STEP 3. SEARCH, SCREEN, AND SELECT STUDIES

Assessing High-Quality Existing Reports, Systematic Reviews, and Meta-Analyses

- **Suitability to the SR question (ability to address PICO criteria)** will be assessed by two independent abstractors

- **Quality will be assessed**
  - Assessments of SRs and MAs will be completed by two independent abstractors using Assessment of Multiple Systematic Reviews (AMSTAR)\(^1\)
  - Assessments of existing reports will be based on questions about the integrity and appropriateness of sources referenced and analysis conducted

---
Describe Existing Sources of Evidence

- Literature Review Team will assess suitability and quality of existing sources and provide the Subcommittees with:
  - Summaries of articles’ suitability and quality assessments
  - Citations, abstracts, and PDF files of full text of all high-quality existing reports, SRs, and MAs reviewed

- Subcommittee members will evaluate appropriateness of existing sources of evidence and determine the source(s) of evidence for the SR question
Searching for Original Research

- If *de novo* SR or supplement *de novo* SR is needed, Literature Review Team librarians will conduct the search strategy and identify the sample of articles to be screened.
- Subcommittee members will review and approve of the search strategy results.
Screening and Selecting Studies

- Articles will be screened by two Literature Review Team abstractors independently, beginning with titles, followed by abstracts to determine which articles meet inclusion criteria.
- Literature Review Team will share exclusion list and rationale for exclusion.
- Subcommittees will review exclusion list and rationale for exclusion to confirm that inclusion criteria have been applied correctly.
Screening and Selecting Studies

- Literature Review Team will collect full text for all articles included
- Subcommittees will receive a list of articles (Excel and EndNote) and full text to review and ensure the list is comprehensive and relevant
2018 Physical Activity Guidelines Advisory Committee Process

RESPONSIBLE PARTY:
P PAGAC
S Subcommittee
L Literature Review Team
Data Abstraction

- Data will be abstracted by two Literature Review Team abstractors independently, for each article type (existing report, SR, MA, original research)
  - As part of the quality assurance evaluation the TQC Team will randomly assess/code 12.5% of articles

- **Data abstracted will include:**
  - Study design
  - Sample characteristics
  - Intervention characteristics
  - Study arms
  - Physical activity treatment
  - Outcomes
  - Time period
Risk of Bias Assessment

- Nutrition Evidence Library’s Bias Assessment Tool (NEL BAT)\(^1\) will be used for all original research articles
  - The NEL BAT is tailored for study design (e.g., RCT, non-RCT, and observational studies) and assesses four types of biases

<table>
<thead>
<tr>
<th>Bias</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection Bias</td>
<td>Systematic differences between baseline characteristics of the groups that are compared; error in choosing the individuals or groups taking part in a study</td>
</tr>
<tr>
<td>Performance Bias</td>
<td>Systematic differences between groups in the intervention/exposure received, or in experience with factors other than the interventions/exposures of interest</td>
</tr>
<tr>
<td>Detection Bias</td>
<td>Systematic differences between groups in how outcomes are determined; outcomes are more likely to be observed or reported in certain subjects</td>
</tr>
<tr>
<td>Attrition Bias</td>
<td>Systematic differences between groups in withdrawals from a study, particularly if those who drop out of the study are systematically different from those who remain in the study</td>
</tr>
</tbody>
</table>

2018 Physical Activity Guidelines Advisory Committee Process

RESPONSIBLE PARTY:

- **P** PAGAC
- **S** Subcommittee
- **L** Literature Review Team
Evidence Portfolios

- Literature Review Team will enter summaries of evidence into the Evidence Portfolio template
- Subcommittees will review and approve the components entered into the Evidence Portfolio by the Literature Review Team
- Subcommittees will complete the Evidence Portfolios
### Evidence Portfolios

<table>
<thead>
<tr>
<th>Literature Review Team Responsibilities</th>
<th>Subcommittee Member Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of the evidence</td>
<td>Conclusion statements</td>
</tr>
<tr>
<td>Description of the evidence</td>
<td>Evidence grade</td>
</tr>
<tr>
<td>Table summarizing existing reports, SRs, and MAs</td>
<td>Key findings</td>
</tr>
<tr>
<td>Individual tables summarizing each original research study</td>
<td>Evidence synthesis</td>
</tr>
<tr>
<td>Risk of bias summary for original research studies</td>
<td>Rationale for evidence grade</td>
</tr>
<tr>
<td>Citation list</td>
<td>Limitations</td>
</tr>
<tr>
<td>Appendix A: Analytical framework</td>
<td>Implication statements</td>
</tr>
<tr>
<td>Appendix B: Final search strategy</td>
<td>Research recommendations</td>
</tr>
<tr>
<td>Addendum: Full text of articles</td>
<td>Review body of evidence</td>
</tr>
</tbody>
</table>
2018 Physical Activity Guidelines Advisory Committee Process

RESPONSIBLE PARTY:
- PAGAC
- Subcommittee
- Literature Review Team

SYSTEMATIC REVIEW PROCESS

1. DEVELOP SYSTEMATIC REVIEW (SR) QUESTIONS
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   - Screen and Select Evidence for Review

4. ABSTRACT DATA AND ASSESS RISK OF BIAS
   - Abstract Data
   - Assess Risk of Bias

5. DESCRIBE THE EVIDENCE
   - Draft Components of Evidence Portfolio
   - Review and Approve Components of Evidence Portfolio

6. COMPLETE EVIDENCE PORTFOLIOS AND DRAFT REPORT
   - Complete Evidence Portfolios
   - Draft Scientific Report Chapters
   - Cross-Review other Subcommittee Report Chapters
   - Review and Approve Scientific Report
Conclusion Statements

- Subcommittee members will develop a conclusion statement to answer each SR question
  - Worded as brief summary statements that answer the SR question
  - Focused on general agreement among the studies around the independent variable(s) and outcome(s), and may acknowledge areas of disagreement or limitations, where they exist
  - Reflect the evidence reviewed and do not include information that is not addressed in the studies
  - Take to full PAGAC with supporting documentation for deliberation and approval at public meetings
Grading the Evidence

- Subcommittee members will grade the evidence
  - Quality of evidence is defined as the extent to which we are confident that an estimate of the effect is correct

- Grading rubric will be used to examine
  - Directness of the study outcomes to the SR
  - Quantity of studies and subjects
  - Risk of bias
  - Consistency of findings across the studies
  - Magnitude of effect
  - Generalizability to the population of interest

- PAGAC will deliberate and make decisions during public meetings
### 2018 Physical Activity Guidelines Advisory Committee Conclusion Statement Grading Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Strong</th>
<th>Moderate</th>
<th>Limited</th>
<th>Grade Not Assignable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Directness</strong></td>
<td>Study populations, interventions, and outcomes are directly related to the systematic review question</td>
<td>Some of the study populations, interventions, and outcomes, are directly related to the systematic review question</td>
<td>Most of study populations, interventions, and outcomes relate to the systematic review question indirectly</td>
<td>All of the study populations, interventions, and outcomes relate to the systematic review question indirectly</td>
</tr>
<tr>
<td><strong>B. Quantity</strong></td>
<td>Several studies; large number of subjects studied, sufficiently large sample size for adequate statistical power</td>
<td>Several studies; doubts about adequacy of sample size to avoid Type I and Type II error</td>
<td>Limited number of studies; low number of studies and/or inadequate sample size within studies</td>
<td>No studies available that directly answer the question</td>
</tr>
<tr>
<td><strong>C. Risk of bias/study limitations</strong> (as determined by NELBAT)</td>
<td>Studies are of strong design; free from methodological concerns, bias, and execution problems</td>
<td>Studies are of strong design with minor methodological concerns OR studies of weaker study design</td>
<td>Studies of weak design OR inconclusive findings due to design flaws, bias, or execution problems</td>
<td>Serious design flaws, bias, or execution problems across the body of evidence</td>
</tr>
<tr>
<td><strong>D. Consistency</strong> (of the results across the available studies)</td>
<td>Results are generally consistent in direction, size of effect, degree of association, and statistical significance</td>
<td>Some inconsistency in results, direction, size of effect, degree of association, or statistical significance</td>
<td>Results are generally inconsistent in direction, size of effect, degree of association, and statistical significance</td>
<td>Findings are too disparate to synthesize OR single small study unconfirmed by other studies</td>
</tr>
<tr>
<td><strong>E. Magnitude of effect</strong></td>
<td>Size of effect is &quot;practically&quot; meaningful</td>
<td>Some doubt about the practical significance of the effect</td>
<td>Size of effect is small or lacks practical significance</td>
<td>Size of effect cannot be determined</td>
</tr>
<tr>
<td><strong>F. Generalizability</strong> (to the US population of interest)</td>
<td>Studied population, intervention, and outcomes are free from serious doubts about generalizability</td>
<td>Minor doubts about generalizability</td>
<td>Serious doubts about generalizability due to narrow or different study population, intervention, or outcomes studied</td>
<td>Highly unlikely that the studied population, intervention, and/or outcomes are generalizable to the population of interest</td>
</tr>
</tbody>
</table>
Subcommittees will develop a narrative summary of the analysis, implication statements, and formulate research recommendations

- Narrative summaries include key findings, synthesis of the evidence, rationale for evidence grades, and limitations
- Implication statements provide practical suggestions for integrating research into practice and may include specific details for certain populations of interest
- Research recommendations provide suggestions for conducting additional research to enhance the evidence base
Drafting the Scientific Report

- Subcommittees will use the final Evidence Portfolios to draft the 2018 PAGAC Scientific Report
- Subcommittees will cross-review each others’ drafts
- PAGAC will review, approve, and finalize the 2018 PAGAC Scientific Report
- PAGAC will submit the final 2018 PAGAC Scientific Report to the Secretary of Health and Human Services (HHS)
- Federal PAG staff will use the report, along with public and federal agency comments, to develop the second edition of the *Physical Activity Guidelines for Americans*
DISCUSSION: LEVEL OF ABSTRACTION DETAIL
Discussion: Level of Abstraction Detail

- Level of detail needed when abstracting and summarizing data/results
- 3 options of ways to summarize the results
- Consider how abstracted information will be used
  - Information you would like to have abstracted
  - Presentation format that would make it easiest to use the abstracted information
Option 1: Summary Table with Abstract

**Citation:**
- Study Design: Group randomized trial
- Study Setting: School
- Study Population: Second grade students from selected schools in Georgia
- Sample Size (analytic sample): 447

**Intervention Characteristics:** Continuous cardiorespiratory physical activity treatment 40 minutes per day, 5 times/week for 8 months

**Outcome(s) & Measurement:** BMI (kg/m²), Body fat percent, Other, Other, Waist circumference (cm), Cholesterol (total) (mg/dL), Diastolic Blood Pressure, HDL cholesterol (mg/dL), Systolic Blood Pressure

**Summary of NEL BAT Limitations:**
- Adequate, valid, and reliable measures were used consistently across both study groups.
- It cannot be determined if adherence to the study protocols were similar across study groups.
- It cannot be determined if participants or investigators were blinded to the intervention status.

**Author-Stated Limitations:**
- Unsure of what factors influenced attendance in the intervention.
- Transporting children home after the program was a large cost item (25% of program cost) and a logistical challenge in rural area schools. Thus, provision of after-school programs requires policy changes at institutional levels in such schools.
- The exposure to the intervention was reduced from the originally planned 9 months to 8 months due to the challenging schedule of testing nearly 600 students in 18 schools at baseline and post-test. It might have reduced the potency of the intervention program.

**Abstract:**
- **Objective:** To test the hypothesis that third grade children (mean age = 8.7, SD = 0.5) who attended an 8-month after-school program would exhibit favorable changes in body composition, cardiovascular fitness, blood pressure, total cholesterol, and high-density lipoprotein-cholesterol compared with children in control condition.

**Research Methods and Procedures:** Subjects were 61% African-American, 31% white, and 8% other racial background from 18 public schools. Sixty-eight percent were eligible for free or reduced price lunch. Percentage body fat and bone mineral density were assessed by DXA, cardiovascular fitness by heart rate response to a step test, resting blood pressure with a Dinamap, and non-fasting total cholesterol and high-density lipoprotein-cholesterol by finger stick. Data pre- and post-intervention were available for 447 children. Children in the nine intervention schools who attended at least 40% of the after-school sessions were compared with control subjects.

**Results:** Compared with the control subjects and after controlling for race, sex, free/reduced price lunch status, and school-level covariates, youths in the intervention group showed a relative reduction of percentage body fat [−0.76 (95% confidence interval (CI), −1.42, −0.09)], a greater relative gain in bone mineral density [0.008 (95% CI, 0.001, 0.005)], and a greater relative reduction in heart rate response to the step test [−4.4 (95% CI, −8.2, 0.6)]. The other outcome variables showed non-significant trends in favor of the intervention subjects.

**Discussion:** These results are promising in light of the potential impact on the emerging childhood obesity epidemic. The Medical College of Georgia FitKid Project has the potential to be institutionalized because it is built on the existing infrastructure in most public schools in the U.S.
**Citation:** 422018 PAGAC Technical Overview

**Outcome(s) & Measurement:** BMI (kg/m^2), Body fat percent, Other, BMD (g/cm^2), Waist circumference (cm), Cholesterol (total) (mg/dL), Diastolic Blood Pressure, HDL cholesterol (mg/dL), Systolic Blood Pressure

**Study Design:** Group randomized trial

**Results:**
- Significant difference in change in %BF in favor of the subjects in intervention schools. Subjects with 40% attendance decreased in %BF, whereas the control subjects gained slightly.
- Intent-to-treat analysis, there was no significant difference between intervention and control subjects.
- No other significant group differences in change in other secondary outcome variables, although there were trends in favor of the intervention subjects in most of the cases.

**Study Setting:** School

**Summary of NEL BAT Limitations:**
- Adequate, valid, and reliable measures were used consistently across both study groups.
- It cannot be determined if adherence to the study protocols were similar across study groups.
- It cannot be determined if participants or investigators were blinded to the intervention status.

**Study Population:** Second grade students from selected schools in Georgia

**Author-Stated Limitations:**
- Unsure of what factors influenced attendance in the intervention.
- Transporting children home after the program was a large cost item (25% of program cost) and a logistical challenge in rural area schools. Thus, provision of after-school programs requires policy changes at institutional levels in such schools.
- The exposure to the intervention was reduced from the originally planned 9 months to 8 months due to the challenging schedule of testing nearly 600 students in 18 schools at baseline and post-test. It might have reduced the potency of the intervention program.

**Sample Size (analytic sample):** 447

**Conclusions:** Year 1 data of MCG FitKid provide preliminary support for the hypothesis that providing access to a safe, super-vised, and age-appropriate setting for PA during the after-school hours will enhance body composition and CVF in elementary school children.

**Intervention Characteristics:**
Continuous cardiorespiratory physical activity treatment 40 minutes per day, 5 times/week for 8 months

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DISCUSSION: LEVEL OF ABSTRACTION DETAIL

Option 3: Summary Table with Data Details

<table>
<thead>
<tr>
<th>Strata-Overall:</th>
<th>BMI (kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Mean</td>
</tr>
<tr>
<td>Baseline</td>
<td>19.3</td>
</tr>
<tr>
<td>Post-test</td>
<td>19.6</td>
</tr>
<tr>
<td>Intervention</td>
<td>Mean</td>
</tr>
<tr>
<td>Baseline</td>
<td>19.4</td>
</tr>
<tr>
<td>Post-test</td>
<td>19.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Waist (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
</tr>
<tr>
<td>Baseline</td>
</tr>
<tr>
<td>Post-test</td>
</tr>
<tr>
<td>Intervention</td>
</tr>
<tr>
<td>Baseline</td>
</tr>
<tr>
<td>Post-test</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%BF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
</tr>
<tr>
<td>Baseline</td>
</tr>
<tr>
<td>Post-test</td>
</tr>
<tr>
<td>Intervention</td>
</tr>
<tr>
<td>Baseline</td>
</tr>
<tr>
<td>Post-test</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FM (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
</tr>
<tr>
<td>Baseline</td>
</tr>
<tr>
<td>Post-test</td>
</tr>
<tr>
<td>Intervention</td>
</tr>
<tr>
<td>Baseline</td>
</tr>
<tr>
<td>Post-test</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FFM (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
</tr>
<tr>
<td>Baseline</td>
</tr>
<tr>
<td>Post-test</td>
</tr>
</tbody>
</table>

Citation:

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Study Population: Second grade students from selected schools in Georgia

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Intervention Characteristics: Continuous cardiopulmonary physical activity treatment 40 minutes per day, 5 times/week for 8 months

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Summary of NEL BAT Limitations:
- Adequate, valid, and reliable measures were used consistently across both study groups.
- It cannot be determined if adherence to the study protocol was similar across study groups.
- It cannot be determined if participants or investigators were blinded to the intervention status.

Author-Stated Limitations:
- Unsure of what factors influenced attendance in the intervention.
- Transporting children home after the program was a large cost item (25% of program cost) and a logistical challenge in rural area schools. Thus, provision of after-
### DISCUSSION: LEVEL OF ABSTRACTION DETAIL

**Companion Piece: Excel Data File**

<table>
<thead>
<tr>
<th>InterventionType</th>
<th>StudyDesignDescription</th>
<th>SampleSizeTotal</th>
<th>SampleSizeAnalysis</th>
<th>SamplingMethod</th>
<th>ControlGroup</th>
<th>CntEntTreat2Analyse</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Provision of information/Education, Behavioral</td>
<td>Randomized Trial</td>
<td>1000</td>
<td>1013</td>
<td>Convenience/Volunteer Sample</td>
<td>yes</td>
</tr>
<tr>
<td>No</td>
<td>Environmental: Physical</td>
<td>Cross-sectional</td>
<td>500</td>
<td>500</td>
<td>Not described</td>
<td>no</td>
</tr>
<tr>
<td>No</td>
<td>Provision of Information/Education</td>
<td>Group Randomized Trial</td>
<td>130</td>
<td>100</td>
<td>Convenience/Volunteer Sample</td>
<td>no</td>
</tr>
<tr>
<td>No</td>
<td>Behavioral</td>
<td>Randomized Trial</td>
<td>50</td>
<td>24</td>
<td>Convenience/Volunteer Sample</td>
<td>yes</td>
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OVERVIEW OF SCOPING EXERCISE
Scoping Exercise Purpose

- Provide an overview of the amount of relevant literature published since 2008
- Classify literature into nine health outcomes included in the 2008 PAGAC Scientific Report
- Provide a starting point for discussion of topics
  - Note: This task was not conducted to replace a systematic review
SCOPING EXERCISE

Search Strategy

- Used search terms published in the 2008 PAGAC Scientific Report for three age groups\(^1\) (adults, older adults, and youth)
  - Small changes were made to address changes in MeSH
  - Limited search to items published from 2008 – Present
  - Excluded cross-sectional studies

- Reviewed search results and found a number of irrelevant studies

---

\(^1\) Adults and youth age groups only contain articles that addressed those audiences. The older adult age group includes studies that also address adults.
SCOPING EXERCISE

Removing Irrelevant Research

- Added *NOT* terms for athlete(s) and efficacy
- Used DoCTER, a machine-learning software application, to cluster articles for each age group
  - DoCTER uses natural language processing to “read” text
  - Each study added to a single cluster based on text similarities of titles and abstracts
- Excluded 2-3 clusters for each age group related to athletes, patients, gait, and/or assessment of tools
## Sampling

<table>
<thead>
<tr>
<th>Group</th>
<th>Total</th>
<th>Sample</th>
<th>Screened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>5636</td>
<td>25%</td>
<td>1409</td>
</tr>
<tr>
<td>Older Adults</td>
<td>3135</td>
<td>25%</td>
<td>784</td>
</tr>
<tr>
<td>Youth</td>
<td>1802</td>
<td>50%</td>
<td>901</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10,573</td>
<td>N/A</td>
<td>3,094</td>
</tr>
</tbody>
</table>
Scoping Exercise

Screening Criteria

- Screened titles and abstracts using criteria from 2008
  - Main antecedent or exposure variable is physical activity or exercise
  - Main health outcome variable or risk factor fits into one of the 2008 health outcome categories
    - Adverse Events
    - All-Cause Mortality
    - Cancer
    - Cardiorespiratory Health
    - Energy Balance
    - Functional Health
    - Mental Health
    - Metabolic Health
    - Musculoskeletal Health
  - Studies of patients who are undergoing active medical treatment and athletes were excluded
# SCOPING EXERCISE

## Results

<table>
<thead>
<tr>
<th>Group</th>
<th>Total</th>
<th>Sample</th>
<th>Screened</th>
<th>Relevant</th>
<th>Projected to be Relevant&lt;br&gt;1</th>
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</thead>
<tbody>
<tr>
<td>Adults</td>
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<td><strong>TOTAL</strong></td>
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1 Projected relevance is the number of relevant articles multiplied by 4 for adults and older adults and by 2 for youth.
## Results by Health Outcome: Adults

<table>
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</thead>
<tbody>
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<td>72</td>
</tr>
<tr>
<td>All-Cause Mortality</td>
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<td>32</td>
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<tr>
<td>Cancer</td>
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<td>24</td>
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<tr>
<td>Cardiorespiratory Health</td>
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## Results by Health Outcome: Older Adults

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<tr>
<td>All-Cause Mortality</td>
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<td>64</td>
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<tr>
<td>Cancer</td>
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<td>32</td>
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## Results by Health Outcome: Youth

<table>
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THANK YOU!

We look forward to working with you!