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Appendix F.1:

Phase 2 Literature Review

Literature reviews for Phase 2 were conducted based on additional requests from members of the Federal Advisory Committee. The following describes the process used to support the abstraction of articles from the Phase 2 literature searches.

Staffing

Staffing in Phase 2 was less than in Phase 1. The life-stage approach to staffing teams was abandoned and replaced with a Centers for Disease Control and Prevention (CDC) Physical Activity Guidelines Advisory Committee (PAGAC) subcommittee liaison system. Because the PAGAC adopted the conceptual framework and divided into 10 subcommittees (all-cause mortality, cardiorespiratory health, metabolic health, energy balance, musculoskeletal health, functional health, cancer, mental health, adverse events, and youth) the CDC and PAGAC decided that a staff member from CDC would be assigned to support each subcommittee in addressing questions about the literature search and the CDC database. This support would include initiating additional literature reviews.

Abstractor Training: Phase 2 “Booster” Sessions

The CDC internal team held the first “booster” training session before the beginning of Phase 2 abstractions. This mandatory session was offered to those 24 abstractors who were the most accurate and productive from Phase 1. The purpose of this training session was to provide additional training on the essential abstraction components to improve the accuracy of the abstractions.

The first Phase 2 booster session was co-taught by three CDC team members. Immediately after the session, abstractors were sent two scientific articles to abstract to become recertified. Only 8 of 24 abstractors passed recertification. Given the 33% pass rate, the CDC team decided that an additional training session was needed.

Of the 16 abstractors who did not pass recertification, 13 attended the second booster training session. An additional training session (at three times throughout the day) was offered and each session was co-taught by CDC staff. Again, after the training, abstractors were sent two scientific papers to abstract. Once the abstraction was approved by the quality control team, the abstractor could begin abstracting. Of the initial 24 abstractors who entered Phase 2, 19 abstractors passed recertification training.

Additional Research Questions for Phase 2

Again, the literature search for Phase 2 was guided by members of the PAGAC. The additional research questions from each subcommittee are provided below.

All Cause Mortality

The All-cause Mortality subcommittee had no additional research questions.

Cardiorespiratory Health

During Phase 2, an additional search for subclinical outcomes was conducted, yielding 206 papers. Inclusion criteria from the subcommittee chair, William Kraus, were to include a study design of a randomized control trial with 25 or more participants per arm or a prospective cohort study with at least 2,000 participants. Using these inclusion criteria, 4 of the 206 papers collected were abstracted.

For peripheral arterial disease, a consultant (Brian Duscha) for the cardiovascular subcommittee identified two papers on this health outcome. One paper was published in the “out of date range” (published in 1993), and the other paper (Gardner et al.) was abstracted.

Musculoskeletal Health

Phase 2 additional research questions were the following:

Bone Questions

1. Is there evidence that physical activity reduces the incidence of osteoporotic fractures?
 - Is there evidence that fracture incidence is influenced by the type or dose (intensity, frequency, duration) of physical activity?
 - Is there evidence that physical activity reduces the incidence of osteoporotic fractures in women and men?
2. Is there evidence that physical activity reduces risk for osteoporosis by increasing, or slowing the decline, in bone mineral density (BMD) or bone mineral content (BMC)?
 - Is there evidence for benefits of physical activity on BMD or BMC in children/adolescents, adults, postmenopausal women or elderly men?
 - Is there evidence that BMD and BMC are influenced by the type or dose (intensity, frequency, duration) of physical activity?

Joint Questions

1. Is there evidence that physical activity reduces or increases the incidence of osteoarthritis (OA)?
2. Is there evidence that physical activity is harmful or beneficial for adults with OA or other rheumatic conditions?

Muscle Questions

1. Is there evidence that physical activity preserves muscle quantity?
 - Is there evidence that muscle mass is influenced by the type or dose of physical activity?
 - Is there evidence that physical activity preserves muscle quantity in women and men?
2. Is there evidence that physical activity preserves muscle quality (defined by force production characteristics and by metabolic characteristics)?

A search initiated by the Musculoskeletal subcommittee search was conducted. No systematic review was conducted by CDC. The purpose of this search was to identify studies that formed a narrative discussion about physical activity and muscle fitness benefits.

Metabolic Health

For Phase 2 additional research questions, the Metabolic Health subcommittee abstracted articles on two additional outcomes: (1) insulin/glucose and (2) gestational diabetes. No further searches that resulted in additional abstractions were done for this group.

Cancer

For Phase 1, the Cancer subcommittee ended up having 16 additional Phase 1 papers identified and abstracted. Twenty-nine papers were identified for Phase 2; of those, 6 were excluded and 7 were already in the database, leaving 16 additional papers that were identified, abstracted, and included.

Phase 2 searches examined the effects of physical activity in cancer survivors with respect to fatigue, lymphedema, strength, flexibility, and body mass index.

Fatigue

- 4 identified, 2 excluded, 2 abstracted

Lymphedema

- 4 identified, 1 excluded, 1 duplicate, 2 abstracted

Strength/flexibility

- 7 identified, 1 excluded, 6 abstracted

Body mass index

- 16 identified, 3 excluded, 5 abstracted, 7 already abstracted, 1 duplicate

Functional Health

The Functional Health subcommittee had no additional research questions during Phase 2.

Energy Balance

The Energy Balance subcommittee had no additional research questions during Phase 2.

Mental Health

The Mental Health subcommittee had no additional research questions during Phase 2.

Youth

For Phase 2, the Youth subcommittee conducted additional literature searches on the following health outcomes: cardiorespiratory fitness, bone density, muscle strength, metabolic syndrome or its components (e.g., hypertension, blood lipids), body composition, depression, anxiety, and self-concept.

Adverse Events

For Phase 2, the Adverse Events subcommittee had two additional outcomes abstracted: (1) health care cost/medical expenditures and (2) upper respiratory tract infection. No further searches that resulted in additional abstractions were done for this group.