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Evidence Report/Technology Assessment
Number 102

Effectiveness of Behavioral Interventions to Modify Physical Activity Behaviors in General Populations and Cancer Patients and Survivors

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-Based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of health care in the United States. This report on *Effectiveness of Behavioral Interventions to Modify Physical Activity Behaviors in General Populations and Cancer Patients and Survivors* was requested and funded by the National Cancer Institute. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions and new health care technologies. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

To bring the broadest range of experts into the development of evidence reports and health technology assessments, AHRQ encourages the EPCs to form partnerships and enter into collaborations with other medical and research organizations. The EPCs work with these partner organizations to ensure that the evidence reports and technology assessments they produce will become building blocks for health care quality improvement projects throughout the Nation. The reports undergo peer review prior to their release.

AHRQ expects that the EPC evidence reports and technology assessments will inform individual health plans, providers, and purchasers as well as the health care system as a whole by providing important information to help improve health care quality.

We welcome written comments on this evidence report. They may be sent to: Director, Center for Outcomes and Evidence, Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850.

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The authors of this report are responsible for its content. Statements in the report should not be construed as endorsement by the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services of a particular drug, device, test, treatment, or other clinical service.

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Structured Abstract

Context: A majority of adults and over a third of children do not engage in adequate physical activity. Further, it has been suggested that exercise may have physiologic and psychological benefits for cancer survivors, from the point of diagnosis and through the balance of life.

Objectives: A systematic review of the literature to address:

1. What is the evidence that physical activity interventions alone, or combined with diet modification or smoking cessation, are effective in helping individuals sustainably increase their aerobic physical activity?
    a. Is the effectiveness of theoretically based interventions different?
    b. Do hypothesized moderators affect the results of these interventions?
    c. Do these interventions affect theoretically hypothesized mediators?
    d. In these interventions, is there a relationship between changes in theoretically hypothesized mediators and changes in physical activity?
2. What is the evidence that physical activity interventions, alone or combined with diet modification or smoking cessation, are effective in helping cancer survivors improve their psychosocial or physiological outcomes?

Data Sources: Question 1: PubMed® (1966–4/2003) plus references from previous systematic reviews and expert suggestions. Question 2: PubMed® (1966–9/2003) plus expert suggestions and bibliographies of included references.

Study Selection: Question 1: Studies with at least 75 generally healthy subjects with an intervention to increase physical activity and activity measured at least three months after the intervention. Studies also must have a concurrent comparison group and be published in English. Question 2: Studies of adults with cancer or survivors with an intervention to increase physical activity with a measure of activity. Also must have a concurrent comparison group, and be published in English.

Data Extraction: Data were doubly abstracted using a computer-based data abstraction tool. Excluded articles were reviewed by a second abstractor. Disagreements were reviewed by senior investigators.

Data Synthesis: The range of populations, interventions, and outcomes in the included studies, as well as inadequate information provided, did not allow pooling of studies. Results were examined semi-quantitatively using whether a study was positive, significant, and, when possible, its effect size. Forty-five percent of the studies had at least one statistically significant outcome; 5.9 percent had an effect size greater than .8 and 5.9 percent were between .5 and .8. There were no clear patterns in results by setting, intensity, interventions using theory, combined interventions, and those that addressed accessibility, possibly due to the small number of studies. It was not possible to draw conclusions about mediators and moderators. Physical activity interventions in the cancer survivor populations were found to have multiple beneficial effects.

The most consistent and strong findings were positive effects on vigor/vitality, cardiorespiratory fitness, quality of life, depression, anxiety, and fatigue.

Conclusions: Overall, this literature is positive, but the relative magnitude of the effect is difficult to judge given the wide range of outcomes examined. The field would benefit from standardized measures and more studies examining longer outcomes. The 24 interventions reviewed indicate that physical activity is safe for cancer survivors and consistently results in improved physiologic and psychosocial outcomes. Recommendations for moving this field of research forward are provided in this report.

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Note: Appendixes and Evidence Tables are provided electronically at http://www.ahrq.gov/clinic/epcindex.htm