



Effective Public Health Practice Project Summary Statement

October 2006

This is a summary statement written to condense the work of the authors of a systematic review. The reference for the full review is below. The intent of this summary is to provide an overview of the findings and implications of the full review. For more information on individual studies included in the review, please see the review itself.

Reference for Review: Hillsdon, M., Foster, C., Thorogood, M. (2005). **Interventions for promoting physical activity.** *The Cochrane Database of Systematic Reviews 2005*, Issue 1. Art. No.: CD003180.pub2. DOI: 10.1002/14651858.CD003180.pub2.

Issue

The Mandatory Health Programs and Services Guidelines for Ontario include objectives to reduce mortality from ischemic heart disease and stroke, as well as morbidity from diabetes, hypertension and osteoporosis, by increasing physical activity in all age groups (Ontario Ministry of Health and Long-Term Care, 1997). Statistics Canada (1997) reported that, in 1997, 173 people died from heart disease and 48 from cerebrovascular disease for every 100,000 members of the Canadian population. Diabetes and hypertension have been identified as risk factors and regular physical activity as a protective factor for myocardial infarction, a leading cause of morbidity and death (Yusuf et al., 2004). Research also supports exercise as a factor in preventing stroke, type 2 diabetes and loss of bone mineral density (Lee et al., 2003; Warburton et al., 2006) and in reducing blood pressure (Dickinson et al., 2006). Despite recommendations of 30 minutes of moderate physical activity on four or more days of the week (Touyuz et al., 2004; Saris et al., 2003), half of Canadians report being physically inactive (Statistics Canada, 2005). While the health benefits of regular physical activity are well established, the effectiveness of interventions to promote physical activity among the general public is not as well known.

Review Content Summary

The systematic review with meta-analysis summarized here was conducted to investigate the benefits and harms of strategies used to encourage sedentary, community-dwelling adults to become more physically active. Differences among studies in setting and participant age, as well as the type, intensity and duration of the intervention, make it difficult to reach overall conclusions. Evidence was available from 17 randomized trials with a total of 5299 participants. Pooled data from 11 studies found benefit in terms of increased self-reported physical activity measured as a continuous variable; one of the six studies that measured physical activity as a dichotomous variable detected a significant effect. The largest effects were found in two studies where older people participated in organized exercise programs, a workplace study where employees received a consultation and heart monitor, and a primary-care study of consultation with an exercise expert.

Comments on this Review's Methodology

In addition to examining reference lists and a key journal, the reviewers searched health, psychosocial and grey literature databases. Study selection criteria and procedures were well described; only randomized and quasi-randomized trials with at least six months of follow-up and either intention-to-treat analysis or a follow-up rate of at least 80% were included. The methodological quality of individual studies was assessed independently by two reviewers using a four-item scale that appears to have been developed for the review. Data were pooled across studies for continuous and dichotomous outcomes using random effects models. Heterogeneity statistics were reported and subgroup analyses were performed to investigate the impact of intervention intensity and study quality on the pooled result. There was statistically significant heterogeneity among studies, even in many of the subgroup analyses.

Randomization procedures for individual studies were not well described and it could not be determined whether or not studies had concealed allocation prior to randomization. In six of the 17 included studies, the control group received no further contact after randomization; in three, they received health advice not related to exercise and in eight, advice or information about physical activity. Participants were recruited from four settings: primary health care, workplace, university and community. Interventions were delivered by physicians, nurses, health educators, counsellors, exercise leaders or peers. The outcome assessor was blind to allocation in only six trials. The primary outcome for the review, self-reported physical activity, was measured as total energy expenditure in calories, number of occasions of physical activity per unit of time or achievement of a predetermined level of physical activity. Nine studies adjusted final results for baseline physical-activity levels.

Evidence and Implications for Practice & Policy

Evidence points ARE NOT weighted or ranked according to strength

What's the evidence?	Implications for practice and policy:
<ul style="list-style-type: none"> > Cardiovascular fitness and self-reported physical activity can be increased in the short-to-mid term with strategies to encourage physical activity. The observed effects were moderate and the practical implications with respect to expected magnitude of effect are difficult to judge based on the standardized mean differences presented in the review. > Interpretation is further hampered by heterogeneity among studies. Given that participants were largely middle-aged volunteers or recruits from practices that received incentives, generalizability of results to less motivated populations may be difficult. 	<ul style="list-style-type: none"> > The range of settings, interventions and outcomes studied makes it impossible to translate this evidence into practice or policy in Ontario.

What's the evidence?	Implications for practice and policy:
<p>> Two identical randomized trials (one in men and one in women) failed to detect increased physical activity levels when counselling and other components were added to advice from a physician plus educational materials and advice from a health educator. VO₂ as a measure of fitness increased among women receiving multi-component interventions, compared to the control program (advice and education).</p>	<p>> Simple interventions may be as effective as multi-component interventions. Before adoption, a program's effectiveness should be evaluated in the target population.</p>
<p>> The reviewers were unable to determine which specific program components were associated with changes in physical activity. Nor were they able to determine if any type of physical activity (e.g., walking) or program delivery (e.g., home versus facility) was more effective than others.</p>	<p>> These issues should be considered for future research.</p>
<p>> Although four studies examined long-term impact (12-24 months after intervention), none detected significant differences between intervention and control at any point in time.</p>	<p>> Measurement of long-term effects should be incorporated into future studies.</p>
<p>> Two studies reported on adverse events; neither detected an increase in exercise-related cardiac events or injury in the intervention group compared to control.</p>	<p>> There was limited evidence that promoting physical activity is safe. This outcome should be measured in all future trials.</p>
<p>General Implications: It is premature to implement wide-spread programs to increase physical activity in the general population. Programs based on sound theoretical frameworks should be evaluated in randomized trials to identify simple, cost-effective methods for a range of populations and settings relevant to Ontario public health practice.</p>	

Cost Benefit or Cost-Effectiveness Information: Not included in the review.

References Used to Outline Issue

Dickinson, H.O., Mason, J.M., Nicolson, D.J., Campbell, F., Beyer, F.R., Cook, J.V., et al. (2006). Lifestyle interventions to reduce raised blood pressure: a systematic review of randomized controlled trials. *Journal of Hypertension*, 24, 215-233.

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