What are the most effective ways of promoting physical exercise in adults?

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A study published this week in the open access journal *PLoS Medicine* has found that of six interventions promoting exercise in adults in Australia, encouraging the use of pedometers - simple step counting devices that can be used as a motivational tool - and promoting physical activity through mass media campaigns are the most cost-effective in terms of the money spent for the health benefits they result in. Considered as a package, researchers at the University of Queensland also conclude that these six interventions could reduce death and illness from heart disease, stroke, cancer and diabetes in Australia, with an overall cost saving for the health sector.

Despite its image as a sporting nation, physical inactivity in Australia, in common with many countries in the developed world and an increasing number of developing countries, is a major public health problem. The World Health Organisation recommends at least 30 minutes of moderate physical activity - which could just be brisk walking - five times per week, but at least 60% of Australia's population does not even do this modest amount. In Australia, physical inactivity leads to 10% of all deaths, largely as a result of cardiovascular disease and diabetes, and globally it is thought to cause 1.9 million deaths per year.

Linda Cobiac and colleagues at the University of Queensland reviewed the medical literature to identify a range of interventions to promote physical activity and transport use in adults, which had evidence of effectiveness and which were suitable programs to implement in Australia. They then calculated the cost-effectiveness of six

interventions. These included TravelSmart - a program that targeted households in Australia with information about walking paths, bus timetables, and offered incentives to reduce reliance on the car. The six interventions also included two that involved general practitioners (GPs): the standard practice amongst GPs in Australia to screen and prescribe physical activity to inactive patients who visit them, as well as the practice of GPs referring patients to counselling sessions with an exercise physiologist at their local general practice. Internet advice on physical activity, the promotion of pedo meters in the community, and a mass media campaign that promoted physical activity and community events and activities, were also assessed.

A standardized approach has been developed to assess cost-effectiveness of different physical activity programs that are suitable in an Australian context, so the researchers were able to compare these six interventions. They calculated the health outcomes of each intervention in terms of disability adjusted life years (DALYs) - the number of healthy years of life lost as a result of premature death or illness - through already published data on how physical activity causes heart disease, stroke, colon and breast cancer, and diabetes. Offsetting the financial cost of each intervention against the number of years of death or injury (or DALYs) that the intervention averted, they concluded that the program promoting the pedometer as a motivational tool for physical exercise and the mass media campaign were the most cost-effective. The GP practice of referring patients to an exercise physiologist was the least cost-effective, especia lly if time and travel costs were considered.

Only the pedometer program and the mass media campaign of the six interventions resulted in an overall cost-saving, but the researchers stress that if the six interventions are considered together "it is likely that the package of interventions would not only be cost-effective by very likely cost-saving to the health sector." The researchers point out that questions remain about the long-term effectiveness of these programs, and that the

quality of the evidence in the literature they reviewed varied. But importantly, the standardized approach to cost-effectiveness offers a model to guide policy-makers in other countries to identify approaches to decrease the burden of disease caused by cardiovascular disease, cancer and diabetes as a result of physical inactivity.

More information: Cobiac LJ, Vos T, Barendregt JJ (2009) Cost-Effectiveness of Interventions to Promote Physical Activity: A Modelling Study. *PLoS Med* 6(7): e1000110. doi:10.1371/journal.pmed.1000110

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