

What type of exercise prevents cardiovascular disease in postmenopausal women?

Manson JE, Greenland P, LaCroix AZ, Stefanick ML, Mouton CP, Oberman A, et al. Walking compared with vigorous exercise for the prevention of cardiovascular events in women. *N Engl J Med* 2002;347:716-25.

Background: Regular physical activity is associated with a reduced risk of cardiovascular disease among men and women in general,^{1,2} but epidemiologic data to confirm a primary preventive role among postmenopausal women have not been available. The Canadian Task Force on Preventive Health Care recommends 30 minutes or more of moderate physical activity on most days of the week,³ yet almost two-thirds of Canadians are physically inactive.⁴ The effects of walking in the primary prevention of cardiovascular events in postmenopausal women have not been explored.

Question: Is walking as effective as vigorous exercise in the prevention of cardiovascular disease in postmenopausal women?

Design: The Women's Health Initiative Observational Study is a prospective, multicentre study in the United States involving postmenopausal women 50-79 years old. Women were excluded if they had a history of coronary artery disease, stroke or cancer or if they were nonambulatory. Participants completed detailed self-administered questionnaires to assess their level of physical activity. Annual mailed questionnaires and review of medical records by physicians blinded to the women's physical activity level were used to gather outcome data. Primary end points were newly diagnosed coronary artery disease (nonfatal myocardial infarction or death from coronary causes) and total cardiovascular events (myocardial infarction, death from coronary causes, coronary revascularization, angina, congestive heart failure, stroke or carotid revascularization).

Results: Of the 73 743 participants included in the study, 16% were from visible minorities. The women were followed for 3.2 years on average and were grouped into 2 sets of quintiles: one for the amount of walking they did in a week and the other for the amount of vigorous activity they performed. The energy expenditures in the walking quintiles were 0, 0.1-2.5, 2.6-5.0, 5.1-10.0 and > 10.0 metabolic equivalent (MET)-hours per week. (A woman walking briskly for 30 minutes every day would expend about 15 MET-h/wk.³) For the vigorous activity quintiles, the energy expenditures in minutes per week were 0, 1-60, 61-100, 101-150 and > 150.

There was a strong dose-response effect between physical activity level and reduced risk of cardiovascular disease in all groups of postmenopausal women. Compared with women in the first quintile for walking, those in the other walking quintiles had relative risks of total cardiovascular disease of 0.88, 0.70, 0.66 and 0.58 respectively (p for trend < 0.001). Similarly, compared with the women in the lowest quintile for vigorous activity, those in the higher quintiles had relative risks of 0.87, 0.73, 0.69 and 0.60 respectively (p for trend < 0.001). The trends for the primary outcome of newly diagnosed cardiac events were similar in both groups. These associations remained after the authors controlled for age, body mass index, ethnicity, smoking status, waist:hip ratio, alcohol consumption, age at menopause, use of hormone replacement therapy, history of hypertension, diabetes mellitus and hypercholesterolemia, family history of heart disease, education level, income level and diet.

Commentary: The strengths of this study include its use of a large and diverse cohort, the prospective design, a 95% response rate to the follow-up questionnaires, detailed breakdowns of physical activity and strict criteria for cardiovascular end points. In post-hoc

analysis the authors found that the results remained unchanged after an attempt to reduce bias related to subclinical disease by excluding data from the first year of follow-up. A limitation of the study is that physical activity was assessed by self-reported questionnaire, which may have overestimated actual levels of activity.

Practice implications: A separate analysis of data from the same cohort in the Women's Health Initiative recently created a stir⁵ when it provided convincing evidence that combination hormone replacement therapy does not prevent cardiovascular disease but rather increases its risk among postmenopausal women.⁶ The current study provides good evidence that walking can reduce the risk of cardiovascular disease by about 12%-40% over 3.2 years, to degrees similar to those achieved with more vigorous physical activity. This is good news, because sedentary postmenopausal women may find it easier to start walking than to engage in more vigorous exercise.

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