



Editorial

Be physically active: the best buy in promoting heart health

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This editorial refers to “Low physical activity as a predictor for total and cardiovascular disease mortality in middle-aged men and women in Finland” by N.C. Barengo et al. on page 2204 and “Joint effects of physical activity, body mass index, waist circumference and waist-to-hip ratio with the risk of cardiovascular disease among middle-aged Finnish men and women” by G. Hu et al. on page 2212[†]

It is now more than 50 years ago that the physical activity-coronary heart disease (CHD) hypothesis was launched by Morris et al.¹ with his pioneer work on London bus drivers. Since then, physical inactivity has been documented as a well-established risk factor for CHD in Western populations; a sedentary lifestyle is associated with about a two-fold increase in risk of CHD. With increasing rates of urbanization and other major changes in human behaviour, the prevalence of a sedentary lifestyle has further increased particularly among the young; it is estimated that children today expend approximately 600 kcal/day less than their counterparts 50 years ago.²

In the meantime, remaining gaps regarding the physical activity-CHD association – have been filled; in this issue of the *Journal* results from two large cohort studies are presented.^{3,4} The great advantage of the study by Barengo et al.³ relates to its power, its long-term follow-up, and to the hard endpoints that were used including all-cause mortality. Another major advantage is the inclusion of a large group of women. Until recently the effects of physical activity in women were less well documented, although results from a review had suggested that the magnitude of benefit experienced by women is similar to that seen in men.⁵

The study by Barengo et al.³ has a great external validity by recruiting the cohorts from the community and by its high participation rates. Furthermore, it is one of the rare studies where different kinds of physical activities are considered and analysed separately and independently from each other. Therefore the results from this study are very welcome and will strengthen the case for giving more attention to physical activity in heart health strategies. The results demonstrate that a sedentary lifestyle resulting from low activity levels both at work and during leisure time is associated with a significant increase in cardiovascular disease (CVD) and all-cause mortality among both sexes. The associations are strong, independent of other major risk factors and illustrate the enormous preventive potential, given the high prevalence of a sedentary lifestyle in most communities. A limitation of most prospective studies is that exposure is measured only once. Thus, possible changes in the activity pattern may have influenced the results. This should in principle dilute existing associations and therefore the results observed here are surprisingly strong. The study by Barengo et al.³ extends over a long time period varying from 4 to 29 years. It would be of interest to know whether the protective effects of moderate and high physical activity extend equally over the whole time period.

In the second paper on physical activity and CVD in this issue,⁴ the association between physical activity and CVD risk is confirmed in both genders and this association is only slightly attenuated after adjustment for other risk factors including indicators of being overweight, obesity and body fat distribution. Therefore we should not consider physical activity as only a mediator of different biological mechanisms that have been associated with atherosclerosis and thrombosis, there is more to it. Physical activity is associated with a better and longer life beyond what we can explain until now. This is also indirectly reflected in the study by Barengo et al.³, where the protective effects of physical activity

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on all-cause mortality were almost similar to those for CVD mortality. This implies that moderate and high activity levels are also protective for non-cardiovascular mortality.

Should the information that we can derive from the studies presented here^{3,4} be confined to Finland or Western Europe? Probably not; recent studies in other parts of the world confirm the importance of a sedentary lifestyle as an independent risk factor for CVD in other cultures.^{6,7} The protective effect of physical activity in very different places of the world has recently been demonstrated in the INTERHEART study where regular physical activity was significantly related to acute myocardial infarction; independent of other risk factors, a sedentary lifestyle accounted for 12.2% of the population attributable risk.⁷

Can we extrapolate the findings in middle-aged Finns to the elderly? A systematic review of observational studies⁸ is supportive of this view and recent results from the HALE project⁹ in 70–90 years-old show that the combination of being physically active, adhering to a Mediterranean diet, moderate alcohol consumption and non smoking is associated with a lowered all-cause mortality of 0.35 (95% CI 0.28–0.44). In view of the recent extension of preventive strategies from CHD into CVD prevention¹⁰ it is also of interest to note that from recent meta-analyses it was concluded that physical activity is also an important modifiable risk factor in the prevention of stroke.^{11,12}

Given all these consistent observations that regular physical activity is associated with a substantial reduction in CVD risk and considering the alarming and increasing prevalence of a sedentary lifestyle in most communities, the implementation of recommendations regarding physical activity, given by different expert committees,^{10,13} should receive top priority. This should involve the whole of the community but the role and

responsibility of health care providers including the cardiologists can not be overestimated.

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