

Survival benefit associated with low-level physical activity



In *The Lancet*, Chi Pang Wen and colleagues¹ report their findings from a very large observational study, showing that a small amount of leisure-time physical activity reduces total mortality, mortality from cardiovascular disease, and mortality from cancer. Although the ability of physical activity in moderate amounts to reduce mortality from all causes has been well documented,²⁻⁴ the public-health recommendation in most countries is to do the equivalent of at least 30 min per day of walking, most days of the week—ie, 150 min per week.^{5,6} Wen and colleagues' study shows that half this amount of physical activity (15 min per day for 6 days a week) reduces all-cause mortality by 14%, cancer mortality by 10%, and mortality from cardiovascular disease by 20%. To our knowledge, this is the first observational study of this size to report important and global health benefits at such a low volume of leisure-time physical activity with this degree of precision. The benefits of physical activity follow a dose-response curve (figure), which clearly shows that although a little amount of physical activity is good, more is better. In an ideal world, people would benefit greatly from 300 min of moderate-intensity physical activity per week, but data from most countries show that this amount of physical activity is achieved by only a small proportion of the population.^{5,7} The reason for this reality is multifactorial and complex, and individual, psychosocial, and environmental factors all play a part.⁸ Repeated, simple advice from a physician—as Wen and colleagues suggest—is one of many interventions that can effectively contribute to increased physical activity.⁹ We agree that this advice is very simple and probably easily achievable.

Because of its observational nature, Wen and colleagues' study cannot establish causality, but their results are entirely consistent with the findings of prospective randomised trials in secondary cardiovascular prevention that show a clear mortality benefit from regular exercise.^{10,11} As such, the direct health benefits of exercise are irrefutable. Exercise can reduce cardiovascular mortality and, in particular, coronary mortality by many mechanisms, including improvements in endothelial function, autonomic tone, inflammation, and risk-factor control. The final common pathways of cardiovascular risk reduction presumably operate through both improved endothelial function and improved

autonomic regulation of cardiovascular function.¹² Improved endothelial function leads to the prevention and stabilisation of coronary atherosclerosis, thereby reducing the risk of acute coronary syndromes. Improved autonomic function leads to a reduced risk of sudden cardiac death. Cancer, like coronary heart disease, is also to an extent preventable and shares several common risk factors such as poor nutrition, obesity, inflammation, and physical inactivity. Therefore, improvements in some of these risk factors with regular exercise could plausibly explain the cancer mortality benefits recorded by Wen and colleagues. The oncoprotective effects of exercise are certainly an expanding topic of research in cancer.¹³

Finally, noteworthy from a public health perspective, 54% of individuals in the Taiwanese cohort studied were inactive, with another 22% doing low levels of leisure-time physical activity only. Rural-to-urban migration across the Asia-Pacific region through rapid economic growth and industrialisation during the past few decades could explain these low levels of physical activity and the concomitant epidemics of obesity and diabetes that are being witnessed.¹⁴ The knowledge that as little as 15 min per day of exercise on most days of the week can substantially reduce an individual's risk of dying could encourage many more individuals to incorporate a small amount of physical activity into their busy lives. Governments and health professionals both have major roles to play to spread this good news story and convince people of the importance of being at least minimally active.

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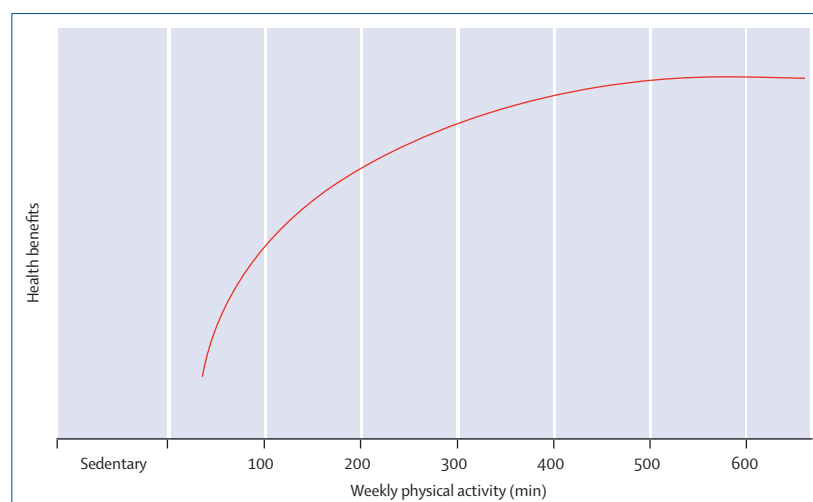


Figure: Relation between health benefits and physical activity

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