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Editorial

## **Walking and health**

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Jeremy Morris was the first to demonstrate the link between exercise and health. Over 70 years ago, he published his groundbreaking papers on exercise epidemiology, providing evidence of the positive correlation between physical activity levels and lower mortality rates. His research into the health benefits of exercise is now widely recognised (Lange, 2024).

Morris and his colleagues demonstrated that sedentary London red double-decker bus drivers were more likely to die suddenly from coronary thrombosis than conductors who climbed the stairs to the upper deck. Furthermore, they found that government clerks working behind counters were more likely to suffer rapidly fatal cardiac infarction than postmen delivering mail on foot or by bicycle (Morris et al., 1953; Morris and Heady, 1953). Based on these observations, Morris concluded that men in physically active jobs have a lower incidence of coronary heart disease than those in physically inactive jobs. The disease tends to be less severe in physically active workers, presenting as relatively benign forms with a lower early mortality rate. Morris played a pivotal role in establishing the importance of physical activity in preventive medicine and public health, significantly impacting global healthcare.

Morris's father recognised the importance of exercise and encouraged him and his brothers to accompany him on a four-mile walk every week. If they completed the walk in an hour, they would be rewarded with an ice cream. If they finished in under an hour, they would receive a choc-ice. Since Morris's early studies, numerous studies have confirmed the health benefits of walking. For example, walking two miles a day halves the risk of coronary disease compared with walking less than 0.25 miles a day. However, walking between 0.5 and 1.5 miles did not significantly reduce the risk of heart disease (Hakim et al., 1999). Men who walked for 11–20 minutes to work had a 12% lower risk of hypertension than those who walked for 10 minutes or less. The decrease in risk was even higher (29%) for those who walked for more than 20 minutes (Hayashi et al., 1999).

For a long time, the idea that walking 10,000 steps a day is essential for good health has been both popular and unsubstantiated. There is little scientific evidence to support this recommendation. Nevertheless, many people still find this rule of thumb useful, even though it was originally intended to promote fitness trackers. The figure of 10,000 steps originates from a marketing campaign in Japan in the 1960s. In the lead-up to the 1964 Tokyo Olympics, a pedometer called the Manpo-kei ("10,000-step meter") was launched. Depending on stride length and height, 10,000 steps is equivalent to walking approximately eight kilometres. While a clear target can motivate some people, it can also demotivate others. Many office workers find it difficult to achieve 10,000 steps in a day, let alone every day. Recent research has investigated the actual meaning of this figure.

A meta-analysis of 15 international cohorts found that adults who take more steps per day have a progressively lower risk of all-cause mortality, up to an age-specific threshold. In particular, older adults can reap the mortality benefits at levels below the commonly cited figure of 10,000 steps per day (Paluch et al., 2022). An umbrella review and meta-analysis found that the risk of all-cause mortality decreases with an increase in the number of steps taken per day. The minimum level of protection is achieved at around 3,000 steps per day, with an optimal range of 7,000–9,000 steps per day. This range varies by age and sex (Rodríguez-Gutiérrez et al., 2024). A recent study synthesised the prospective dose-response relationship between daily steps and various health-related outcomes. Walking 7,000 steps per day was associated with a 47% lower risk of all-cause mortality (Ding et al., 2025). Even modest daily step counts were associated with health benefits. Compared with people who walked 2,000 steps a day, those who walked 7,000 steps a day were found to be 25% less likely to develop cardiovascular disease, 38% less likely to develop dementia and 22% less likely to experience depressive symptoms. Beyond 7,000 steps, the benefits for most health conditions tended to plateau, although

walking further provided additional heart health benefits. These findings dispel the idea that taking 10,000 steps a day is essential for achieving optimal health.

A recent study examined whether it is the duration or the number of steps that matters more. The results suggest that duration is more important than number of steps (Del Pozo Cruz et al., 2025). Longer, continuous walking sessions (e.g. 10–15 minutes) are more effective at reducing cardiovascular risk than shorter, more intermittent sessions. According to the study, the ideal is to walk for at least 15 minutes (approximately 1,500 steps) at a time. The researchers found that adhering to this recommendation reduces the risk of mortality, heart attacks, and strokes. Among subjects who walked fewer than 5,000 steps per day, but did so continuously, the risk of cardiovascular disease was halved. It appears that the manner in which one walks is more important than the number of steps taken for reducing the risk of heart disease, particularly among the least active individuals.

There is robust scientific evidence that physical activity and sport can play an important role in preventing and managing chronic diseases at the individual and population levels (Lange, 2017; Lange, 2023; Lange and Nakamura, 2020). The important role of an active lifestyle in preventing (and treating) non-communicable diseases has long been overlooked. The World Health Organization recognises physical inactivity as one of the leading global risk factors for morbidity and premature mortality, and the United Nations considers physical activity fundamental to the fight against non-communicable diseases. Despite the compelling evidence of its protective effects, the importance of physical activity is still not widely recognised.

The lack of physical activity and increasingly sedentary lifestyles among children and adolescents are a cause for concern. Inadequate levels of physical activity in this age group are currently a major global health issue with the potential to have long-lasting effects on future health and mental wellbeing (Lange and Nakamura, 2024; Lange et al., 2023a; Lange et al., 2023b). Interventions that encourage active commuting to work or school, specifically walking and cycling, are needed for both adults and children (Audrey et al., 2014; Lange and Nakamura, 2025).

In conclusion, the idea of taking 10,000 steps a day is a myth. It originated from a marketing campaign for a pedometer, not scientific research. However, even small increases in physical activity, such as taking an extra 1,000 steps per day, can provide health benefits. To achieve the greatest risk reduction, people are recommended to aim for between 5,000 and 7,000 steps per day. This is a more achievable target than the commonly held belief of 10,000 steps. Walking 7,000 steps a day has been shown to reduce the risk of several serious health conditions and premature death. While health risks continue to decrease beyond 7,000 steps, the rate at which this reduction occurs begins to slow. Those who already walk 10,000 steps a day should maintain their activity level, but the lower target may be more realistic for inactive individuals.

Recent findings emphasise the importance of considering not only the total number of steps, but also how physical activity is accumulated, when developing more effective public health interventions. Among inactive individuals, those who accumulate most of their steps in longer bouts have a lower risk of cardiovascular disease and all-cause mortality than those whose steps are mostly taken in shorter bouts. In short, not every step is equal.

### Conflict of interest

The author declared no conflict of interest.

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