

I would walk 10 000 steps but should I walk 10 000 more?

In this prospective cohort study published in *JAMA Internal Medicine*, del Pozo Cruz and colleagues describe the associations of step count and intensity with mortality, cancer and cardiovascular disease (CVD) in 78 500 individuals recruited from the UK Biobank database. Over a median of 7 years' follow-up, increasing daily step count was associated with reductions in mortality (all-cause, cardiovascular and cancer-related) and incidence of CVD and cancer. These benefits were observed with a clear dose–response relationship up to around 10 000 steps per day. Furthermore, increased stepping intensity was associated with further risk reduction, particularly for incidence of CVD and cancer. Notably, there was no minimum daily step count associated with these morbidity and mortality benefits. These findings will hopefully help us motivate and facilitate change in our less active patients in primary care; daily step count goals should be individualised to ensure they remain realistic and achievable, yet still provide improvements in morbidity and mortality.



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Walking 10 000 steps daily is exercise lore and is recommended by many as a core activity to maintain our physical and mental wellbeing. Wearable fitness trackers are well entrenched in modern society and often routinely set 10 000 steps as a daily activity target. However, this concept of 10 000 daily steps is not evidence-based and was created as part of a very successful marketing campaign for a pedometer sold shortly after the Tokyo Olympics in 1964. The device was called *manpo-kei*, which translates into English as “10 000-step meter”. The Japanese character for 10 000 looks like a person walking, which is thought to be how the number was chosen.

Several guidelines and consensus statements do recommend increasing daily step count to improve cardiometabolic health; for example, the ADA/EASD 2022 consensus report on the management of hyperglycaemia in type 2 diabetes reminds us that an increase of just 500 steps per day is associated with a 2–9% reduction in the risk of cardiovascular morbidity and all-cause mortality (Davies et al, 2022). Moreover, a 5–6-minute brisk-intensity walk per day equates to around 4 years' greater life expectancy. However, high-quality evidence for improved cardiometabolic and cancer outcomes

by undertaking 10 000 steps daily remains, hitherto, sparse.

This recently published, well-conducted, population-based, prospective cohort study aimed to describe the associations of step count and intensity with all-cause mortality, cancer and cardiovascular disease (CVD). It interrogated data from the well-established UK Biobank biomedical database, so the results are generalisable to healthcare professionals working within the UK.

A total of 78 500 individuals were recruited; mean age was 61 years, 55% were female and 97% identified as White ethnicity. This lack of ethnic diversity is disappointing, as it is well known that adequate physical activity levels and resultant cardiometabolic outcomes vary between different ethnic groups.

Participants were invited by email to participate in an accelerometer study, in which a wrist-worn accelerometer measured daily step count and intensity (steps/minute). It should be noted that step count data were only collected at baseline for 7 days, and the authors do acknowledge this may not be representative of usual walking habits. However, repeat accelerometer measurements were undertaken 4 years later in a small sample of the recruited

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population (3400 individuals), and this demonstrated consistent walking behaviours.

The primary outcomes of the study were cancer and CVD incidence and all-cause, cancer-related and CVD-related mortality. Individuals were followed up for a median of 7 years.

The study found that increasing daily step count was associated with reductions in mortality (all-cause, cancer and CVD) and incidence of CVD and cancer. These benefits were observed with a clear dose–response relationship up to around 10 000 steps per day. The findings were seen across all ages, although the authors acknowledge that older adults have higher energy expenditure and that a single step count recommendation may not be appropriate for all adults.

Furthermore, increased stepping intensity was associated with further risk reduction, particularly for incidence of CVD and cancer. Specifically, *peak 30-minute cadence* (a metric which reflects best-effort step intensity for a given day as well as regularity of a high step intensity across a given

week) was consistently associated with lower morbidity and mortality risks.

Notably, there was no minimum daily step count associated with these morbidity and mortality benefits, which is consistent with the ADA/EASD consensus report recommendation. Therefore, daily step count goals should be individualised to ensure they remain realistic and achievable, yet still provide improvements in morbidity and mortality.

In conclusion, increasing daily step count and intensity were associated with improvements in mortality and morbidity up to around 10 000 steps, with no minimum step count for benefits. These findings will hopefully help us motivate and facilitate change in our less active patients in primary care – plus they finally provide an evidence base to using *manpo-kei!*

Davies MJ, Aroda VR, Collins BS et al (2022) Management of hyperglycaemia in type 2 diabetes, 2022. A consensus report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). *Diabetologia* 65: 1925–66