EDITORIAL

Higher number of daily steps associated with lower all-cause mortality

AUTHOR
Dr Jez Thompson
MB ChB MSc MRCGP
GP, Leeds, UK

PEOPLE TAKING AT LEAST 7,000 STEPS A DAY HAVE A 50-70% LOWER RISK OF MORTALITY COMPARED with those taking fewer daily steps, a large cohort study from the USA has found.[1]

The study was part of the Coronary Artery Risk Development in Young Adults (CARDIA) study which included 5,115 men and women aged 18-30 at baseline in 1985-86. The CARDIA study recruited a balanced sample by race (black and white), sex, age, and education from four US locations (Birmingham, Alabama; Chicago, Illinois; Minneapolis, Minnesota; and Oakland, California).

At the year 20 follow-up examination, when they were aged between 38 and 50 years, 2,332 participants wore an accelerometer to measure steps taken for up to a week during 2005-06, as part of the CARDIA fitness ancillary study.

Data on 2,110 participants from the CARDIA study achieving a minimum of three days recording for 10 hours a day were analysed in 2020 and 2021. The mean age of those participants was 45.2 years, 1,205 (57.1%) were women, and 888 (42.1%) were black. Mean follow-up was 10.8 years.

'Adults taking at least 7,000 steps/day had a 50-70% lower risk of mortality'

Daily steps volume was classified as:

- Low (< 7,000 steps/day)
- Moderate (7,000-9,999 steps/day)
- High (≥ 10,000 steps/day)

Stepping intensity was classified as peak 30-minute stepping rate and time spent at ≥ 100 steps/minute.

The median (interquartile range) number of steps per day was 9,146 (7,307-11,162). During 22,845 person years of follow-up, 72 participants (3.4%) died.

Compared with participants in the low step group, there was a significantly lower risk of mortality in the moderate and high step groups.

- Moderate step group: hazard ratio (HR) 0.28 (95% CI: 0.15-0.54); risk difference (RD) 53 (95% CI: 27-78) events per 1,000 people
- High step group: HR 0.45 (95% CI: 0.25-0.81); RD 41 (95% CI: 15-68) events per 1,000 people

Compared with the low step group, moderate and high step rates were associated with reduced risk of mortality in both black and white participants.

- Black participants: HR 0.30 (95% CI: 0.14-0.63)
- White participants: HR 0.37 (95% CI: 0.17-0.81)

Compared with the low step group, moderate and high step rates were associated with a reduced risk of mortality in both women and men.

- Women: HR 0.28 (95% CI: 0.12-0.63)
- Men: HR 0.42 (95% CI: 0.20-0.88)

There was no significant association between peak 30-minute intensity with risk of mortality:

- Lowest vs highest tertile: HR 0.98 (95% CI: 0.54-1.77)

There was no significant association between time at ≥ 100 steps/minute with risk of mortality:

- Lowest vs highest tertile: HR 1.38 (95% CI: 0.73-2.61)

Taking regular physical exercise is one of the most important things people can do to improve and maintain good health. The number of steps taken each day has become a popular metric for assessing daily activity, and is easily measured by wearable devices, including mobile phones. However, current national guidelines for physical activity typically do not include step counts as a public health target. One reason is the lack of empirical evidence demonstrating prospective associations of steps taken and step intensity with clinical outcomes.

The study authors state: 'In this cohort study of black and white middle-aged women and men, higher daily steps were associated with a lower risk of all-cause mortality. Adults taking at least 7,000 steps/day, compared with those taking fewer than 7,000 steps/day, had approximately 50% to 70% lower risk of mortality. Taking more than 10,000 steps/day was not associated with further reduction in mortality risk.'

They conclude: 'The findings of this study may have important clinical implications. Wearable patient monitoring systems are emerging as personalised medicine tools for the prevention and management of chronic conditions. Steps estimated from these devices could be a simple metric to track and promote physical activity. Encouraging walking to achieve step goals is a well-tolerated form of activity for most people.'

REFERENCE
1 Paluch AE, Gabriel KP, Fulton JE et al. Steps per day and all-cause mortality in middle-aged adults in the Coronary Artery Risk Development in Young Adults study. *JAMA Network Open* 2021;4(9):e2124516

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