

It's How You Walk!

Intensity and number of daily steps matter

We have all heard that getting 10,000 steps daily is a good goal for health. We should try to walk and move around during the day whenever possible. Tracking total steps is easy (our phones are keeping track for us) and means that we can acquire steps both meandering around our homes or workplaces (incidental steps) or walking briskly (purposeful steps) but many apps don't tell us the intensity of our walking. Does the number of steps matter more than the intensity of steps; are purposeful steps better than others? Is the pace of our walking important? How many purposeful steps do we need to achieve the goal of lower overall, cancer, and heart disease mortality compare to the number needed of total steps? Can we get full benefits with fewer steps?



Abstract

- **Importance:** Recommendations for the number of steps per day may be easier to enact for some people than the current time- and intensity-based physical activity guidelines, but the evidence to support steps-based goals is limited.
- **Objective:** To describe the associations of step count and intensity with all-cause mortality and cancer and cardiovascular disease (CVD) incidence and mortality.
- **Design, Setting, and Participants:** This population-based prospective cohort study used data from the UK Biobank for 2013 to 2015 (median follow-up, 7 years) and included adults 40 to 79 years old in England, Scotland, and Wales. Participants were invited by email to partake in an accelerometer study. Registry-based morbidity and mortality were ascertained through October 2021. Data analyses were performed during March 2022.
- **Exposures:** Baseline wrist accelerometer-measured daily step count and established cadence-based step intensity measures (steps/min): incidental steps, (<40 steps/min), purposeful steps (≥ 40 steps/min); and peak-30 cadence (average steps/min for the 30 highest, but not necessarily consecutive, min/d).
- **Main Outcomes and Measures:** All-cause mortality and primary and secondary CVD or cancer mortality and incidence diagnosis. For cancer, analyses were restricted to a composite cancer outcome of 13 sites that have a known association with reduced physical activity. Cox restricted cubic spline regression models were used to assess the dose-response associations. The linear mean rate of change (MRC) in the log-relative hazard ratio for each outcome per 2000 daily step increments were also estimated.
- **Results:** The study population of 78 500 individuals (mean [SD] age, 61 [8] years; 43 418 [55%] females; 75 874 [97%] White individuals) was followed for a median of 7 years during which 1325 participants died of cancer and 664 of CVD (total deaths 2179). There were 10 245 incident CVD events and 2813 cancer incident events during the observation period. More daily steps were associated with a lower risk of all-cause (MRC, -0.08 ; 95% CI, -0.11 to -0.06), CVD (MRC, -0.10 ; 95% CI, -0.15 to -0.06), and cancer mortality (MRC, 95% CI, -0.11 ; -0.15 to -0.06) for up to approximately 10 000 steps. Similarly, accruing more daily steps was associated with lower incident disease. Peak-30 cadence was consistently associated with lower risks across all outcomes, beyond the benefit of total daily steps.
- **Conclusions and Relevance:** The findings of this population-based prospective cohort study of 78 500 individuals suggest that up to 10 000 steps per day may be associated with a lower risk of mortality and cancer and CVD incidence. Steps performed at a higher cadence may be associated with additional risk reduction, particularly for incident disease.

Encouraging people to walk 10,000 steps daily is a very low-risk, high-reward proposition. It costs nothing and there are lots of potential benefits. This study looked at the link between the number of steps taken and the risk of death. The researchers enrolled 78,500 people (a huge number) and had them wear accelerometers for 7 days to measure the

number of incidental steps, purposeful steps, and peak cadence – peak walking speed. They linked this to all-cause, cancer, and cardiovascular disease mortality.

They found that as step counts increased, the risk of death decreased. More steps were better up to around 10,000 steps and then there wasn't much improvement with higher numbers of steps. People who hit 10,000 steps had a 36% reduction in mortality risk. Interestingly, purposeful steps (walking briskly) are better than others. This study found that 5000 purposeful steps had the same effect as 10,000 total steps. A higher step cadence was associated with lower mortality as well. The top 20% in the cadence analysis (faster walkers) had a 34% lower risk of death as compared to the slowest 20%. The strongest correlation was with the risk of cardiovascular disease.

What does this mean? Getting 10,000 steps daily is still a great goal, but if we get 5000 purposeful steps at a higher cadence, we can achieve similar benefits. When you walk, walk with purpose!

del Pozo Cruz B, Ahmadi MN, Lee I, Stamatakis E. Prospective Associations of Daily Step Counts and Intensity With Cancer and Cardiovascular Disease Incidence and Mortality and All-Cause Mortality. JAMA Intern Med. Published online September 12, 2022. doi:10.1001/jamainternmed.2022.4000.