

Physical activity trajectories are associated with the risk of all-cause and cardiovascular disease mortality in patients with coronary heart disease. A systematic review and meta-analysis

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Funding Acknowledgement: Type of funding sources: Public Institution(s). Main funding source(s): University of Bern

Background: Current guidelines recommend that adults with chronic health conditions should engage in regular physical activity (PA), and avoid inactivity. Yet, the exact role of PA trajectories in the mortality risk of patients with coronary heart disease (CHD) remains unclear.

Purpose: We aimed to perform a systematic review and meta-analysis on the association of longitudinal trajectories of PA with all-cause and cardiovascular disease (CVD) mortality in patients with CHD.

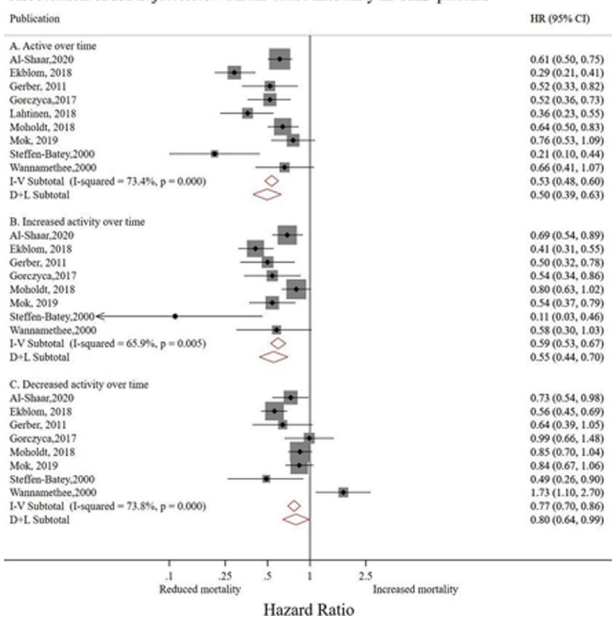
Methods: We performed a systematic review and meta-analysis based on PRISMA statement. Six electronic databases were searched for cohort studies that analysed the association of PA trajectories (inactive over time, active over time, increased activity over time, and decreased activity over time) with the risk of all-cause and CVD mortality in patients with CHD. Study quality was evaluated by the Newcastle Ottawa scale. We used the inverse variance weighted method to combine summary measures using random-effects models to minimize the effect of between-study heterogeneity. The study is registered in PROSPERO.

Results: We meta-analyzed nine longitudinal cohorts involving 33,576 patients (25010 acute CHD, 8566 chronic CHD, mean age 62.5 years, 34% women, median follow-up duration 7.2 years), according to four PA trajectories. All studies assessed PA through validated questionnaires. The definitions of activity and inactivity at baseline and follow-ups were in agree-

ment with current PA guidelines. Trajectories were calculated based on comparison of activity status at baseline and follow-up. All the studies defined increased activity over time as moving from the inactive to the active category, and decreased activity over time as moving from the active to the inactive category. Compared to patients remaining inactive over time, the lowest risk of all-cause and CVD mortality was observed in patients remaining active over time (HR [95% CI]: 0.50 [0.39–0.63] and 0.48 [0.35–0.68], respectively), followed by patients who increased their PA over time (HR [95% CI]: 0.55 [0.44–0.7] and 0.63 [0.51–0.78], respectively), and patients who decreased activity over time (HR [95% CI]: 0.80 [0.64–0.99] and 0.91 [0.67–1.24], respectively). These results were consistent both in the acute and chronic CHD settings. The overall risk of bias was low, and no evidence of publication bias was observed. Multiple sensitivity analyses provided consistent results.

Conclusions: In patients with CHD, the risk of all-cause and CVD mortality is progressively reduced from being inactive over time, to decreased activity over time, to increased activity over time, to being active over time. These findings highlight the benefits of adopting a more physically active lifestyle in patients with chronic and acute CHD, independent of previous PA levels. Future studies should clarify the complex interactions between motivations and disease severity as potential drivers for PA trajectories

Association of PA trajectories with all-cause mortality in CHD patients



Association of PA trajectories with CVD mortality in CHD patients

