Accepted author's manuscript. Published in final edited form as: European Journal of Preventive Cardiology 2019 (in press). Publisher DOI: https://doi.org/10.1177/2047487319895872

Walking pace—don't hurry, be active

Sanne Verhoog[1], Hugo Saner[1,2]

1 Institute of Social and Preventive Medicine, University of Bern, Bern, Switzerland

2 Department of Cardiology, University Hospital Bern, Switzerland

Walking pace is strongly associated with cardiovascular disease and mortality.[1] This compels us to ask about the nature of this association: does walking pace causally affect mortality, is it mainly a marker of underlying fitness and health, or to what extend does it reflect environmental and cultural factors?

In their study published in *European Journal of Preventive Cardiology*, Zaccardi et al.[2] investigated whether the association of brisk walking and hand grip strength with mortality is influenced by other lifestyle factors. In a cohort of 450,888 participants from the UK, they found that brisk and normal pace walkers live longer than slow walkers regardless of other lifestyle behaviours except for smoking. Brisk walkers with an otherwise unhealthy lifestyle still have a lower mortality risk than slow walkers with a healthy lifestyle. The greatest survival difference was found between a slow and an average walking pace; the additional benefit of a brisk walking pace compared to average pace was rather small.

The approach to investigating the association of different lifestyle behaviours and risk factors with survival across different levels of walking pace and hand grip strength is novel but also requires complex and sophisticated statistical analyses. The rationale for this novel approach is the heterogeneous association of lifestyle factors with survival and the potential survival difference across levels of the same risk factor. Overall, it is not surprising that the greatest survival benefit was found between slow and average walking pace. This may reflect to a great extent differences in overall physical activity and fitness. The small additional benefit between average and brisk walking could reflect the fact that walking is a complex functional activity in which several physical and mental factors act in combination to influence pace. As stated by the authors, the degree to which a slow walking pace is simply a marker of mortality risk or has potential to causally affect mortality cannot be addressed, given the observational nature of the study.

The findings by Zaccardi et al. may be of public health importance, as self-reported walking pace could be used as a simple and informative prognostic factor to guide decision–making and interventions.[3] Fast or

normal walking requires the involvement of multiple organ systems, including the heart, lungs, and circulatory, nervous, and musculoskeletal systems, and could therefore be considered as an indicator of reasonable physical fitness and overall health.[4] Rather than focusing on multiple lifestyle factors, in which intervention can be costly and difficult, attention could be shifted to two lifestyle factors that have a strong impact on health and survival: smoking and walking pace. However, we do not know whether simply admonishing slow walkers to walk faster will improve their health and decrease their mortality.

Zaccardi et al. based their study of survival differences upon self-reported walking pace. Only a single study has compared self-reported walking pace with objectively measured walking speed.[5] Both actual walking pace and perceptions of it may differ across countries and cultures. Although the study of Zaccardi et al. is quite large, it was confined to a single country. This allows studying inferences about a relationship at the individual level. Levine and Norenzayan studied the pace of life in 31 countries around the world[6] and found that places with a faster pace of life had higher rates of death from coronary heart disease and higher smoking rates. This suggests that in certain settings fast walking may be a reliable proxy for stressful living, which results in higher incidence of coronary disease[7] and smoking,[8] and compromised health. Where fast walking pace is an expression of a hurried life, faster walkers might not be healthier walkers. Moreover, when comparing societies with different pace of life, places with a faster pace of life were more likely to have colder climates and healthier economies, and to emphasize individualism rather than collectivism.[6] This suggests that the association between self-reported walking pace and mortality that Zaccardi et al. observed may vary in different parts of the world with different socioeconomic and environmental factors.

The answer to the question if walking pace indicates underlying fitness and health is simple: the answer is yes. However, walking pace also may reflect environmental and cultural factors. Self-reported walking pace could be clinically meaningful in any setting, though its meaning may differ with setting. Whether altering walking pace can causally affect mortality needs further elucidation. Nevertheless, we know that walking–whether fast or slow–can be beneficial for both individuals and the communities we live in. Walking is part of our personal lifestyle and cultural environment, and we should walk as our own functional capacity allows: don't hurry, be active.

Acknowledgement

We thank Christopher Ritter for editorial assistance.

References

1. Veronese N, Stubbs B, Volpato S, et al. Association Between Gait Speed With Mortality, Cardiovascular Disease and Cancer: A Systematic Review and Meta-analysis of Prospective Cohort Studies. *Journal of the American Medical Directors Association* 2018; 19: 981-988.e987. 2018/07/30. DOI: 10.1016/j.jamda.2018.06.007.
2. Zaccardi F, Franks PW, Dudbridge F, et al. Mortality risk comparing walking pace to handgrip strength and a healthy lifestyle: A UK Biobank study. *European Journal of Preventive Cardiology* 2019: 2047487319885041. DOI: 10.1177/2047487319885041.
3. Cesari M, Kritchevsky SB, Penninx BW, et al. Prognostic value of usual gait speed in well-functioning older people--results from the Health, Aging and Body Composition Study. *Journal of the American Geriatrics Society* 2005; 53: 1675-1680. 2005/09/27. DOI: 10.1111/j.1532-5415.2005.53501.x.
4. Studenski S, Perera S, Patel K, et al. Gait speed and survival in older adults. *Jama* 2011; 305: 50-58. 2011/01/06. DOI: 10.1001/jama.2010.1923.
5. Syddall HE, Westbury LD, Cooper C, et al. Self-reported walking speed: a useful marker of physical performance among community-dwelling older people? *Journal of the American Medical Directors Association* 2015; 16: 323-328. 2014/12/20. DOI: 10.1016/j.jamda.2014.11.004.
6. Levine RV and Norenzayan A. The Pace of Life in 31 Countries. *Journal of Cross-Cultural Psychology* 1999; 30: 178-205. DOI: 10.1177/0022022199030002003.
7. Song H, Fang F, Arnberg FK, et al. Stress related disorders and risk of cardiovascular disease: population based, sibling controlled cohort study. *BMJ* 2019; 365: l1255. DOI: 10.1136/bmj.l1255.
8. Slopen N, Kontos EZ, Ryff CD, et al. Psychosocial stress and cigarette smoking persistence, cessation, and relapse over 9-10 years: a prospective study of middle-aged adults in the United States. *Cancer Causes Control* 2013; 24: 1849-1863. 2013/07/17. DOI: 10.1007/s10552-013-0262-5.