

Editorial

Title: What Hippocrates called “Man’s best medicine”: walking is humanity’s path to a better world

Authors: Emmanuel Stamatakis^{1,2}, Mark Hamer³, Marie H Murphy⁴

Affiliations

¹ Charles Perkins Centre, Epidemiology Unit, University of Sydney, Australia

² Prevention Research Collaboration, School of Public Health, Faculty of Medicine and Health, University of Sydney, Australia

³ School of Sport, Exercise and Health Sciences, Loughborough University, UK

⁴ Sport and Exercise Sciences Research Institute, University of Ulster, Northern Ireland

Whether it is a stroll on a sunny day, walking to and from work, or walking down to the local shops, the act of putting one foot in front of the other in a rhythmic manner is as much human nature as breathing, thinking, and loving. This *Walking and Health* special issue of BJSM celebrates the 21st anniversary of Morris and Hardman’s seminal Walking to Health review published in 1997¹. This Special Issue is an opportunity to celebrate three decades of exciting multidisciplinary research on this seemingly mundane activity - walking. The member society lead on this Special Issue, the International Society of Physical Activity and Health (ISPAH), has been instrumental to the growth of this area of research and global advocacy for physical activity that has culminated in the development of the WHO Global Physical Activity Action Plan². The forthcoming 7th ISPAH Congress (October 15th-17th 2018, London) – the first ISPAH conference in the UK -- is a wonderful opportunity

for the interested reader to engage with a welcome community of scientists, practitioners and policymakers in walking and physical activity.

A comprehensive update on walking and health in this issue

This Special Issue includes three extended editorials^{3 4 5}, three systematic reviews^{6 7 8} (including one meta-analysis⁶), one narrative review, one scoping review⁹, and one individual participant pooled analysis¹⁰. World Health Organization Program Leader Fiona Bull and the co-author of the 1997 review Adrienne Hardman³ provide the historical context. What was state-of-the art in 1997 and have we made much progress? Most importantly, Bull and Hardman remind us that walking promotes both the health of our planet and the health of individuals³. Indeed, one of the basic tenets of the emerging planetary health movement¹¹ is how the individual health benefits of walking, the reduction of carbon emissions, and the environmental sustainability in an increasingly urbanised world go hand-in-hand. Walking has strong social roots – it is much more than merely a physical and functional activity. The editorial by Hunter and colleagues⁴ explains how walking behaviour is shaped by social norms and how it can be promoted by harnessing the power of social networks. This is a thoughtful attempt to bridge two dominant individual (micro-level) and population (macro-level) ways of thinking by introducing the social dimension (meso-level) of walking behaviour change. The systematic review by Ding and colleagues⁷ takes a unique look at the influence of the local built environment on walking behaviour by synthesising studies of residential relocation, i.e. studies that examined walking behaviour before and after people relocated between neighbourhoods that differ in environmental attributes. This review adds a valuable dynamic dimension to the existing, predominately cross-sectional, literature on built environment and physical activity. But what is the evidence that environmental and other population-wide interventions changes can actually change walking behaviour? This is a challenging question because, as Foster and colleagues⁸ highlight in their systematic review on what works to promote

walking, such evaluations are hard to plan and cannot be subjected to traditional medical research models such as randomised controlled trials. While social and built environment have established links with physical health and behaviour, does a vital behaviour like walking influence mental wellbeing? The scoping review by Kelly and colleagues¹² maps the progress that has been made since Morris and Hardman stated “The pleasurable and therapeutic, psychological and social dimensions of walking, whilst evident, have been surprisingly little studied” in their original text,¹ and propose directions for future research.

OK, but how much and how fast?

While it is beyond doubt that the physical and social environments can determine our walking behaviour, practitioners and individual members of the public still need to know how much and how fast walking should be to produce minimal and optimal health benefits. The huge popularity of fitness trackers¹³ has been mostly founded on people’s desire to monitor the number of steps in daily life but the pace of those steps is often ignored. Oja and colleagues⁶ meta-analysed 37 randomised controlled trials that examined the effect of walking characteristics (amount, frequency, and intensity) on an array of cardiovascular risk markers to determine whether there is a dose-response effect. In other words, is “the more or faster (walking) the better” for cardiovascular health? Catrine Tutor-Locke and colleagues⁹, address the issue of cadence: how many steps per minute is “enough” for health benefits? Based on a review of controlled, epidemiological, and intervention studies, the authors⁹ propose a cadence that corresponds to moderate intensity physical activity for most adults; this cadence threshold will be of great value to public health & clinical recommendations. But since counting steps could be an arduous task for many, the question remains – Does *self-rated* (e.g. slow, average, fast) walking pace associate with long-term indicators of health such as all-cause, cardiovascular disease related, and cancer mortality risk? We share the answers that were derived from a nearly half a million person-years pooled analysis of 11 British

cohorts that included a sample of over 50,000 walkers from the general population.¹⁰ A strength of that study was a relatively new direction in meta-analysis that involves individual participant level data¹⁴.

Translating it all into political action

No matter what the science says, little can change in practice if governments around the world do not acknowledge the huge potential of walking and invest on long-term strategies to increase its prevalence. Scotland is a rare example of action in the right direction, as the Minister for Public Health and Sport Aileen Campbell's and her colleagues⁵ elaborate in their Bright Spots¹⁵ editorial. The outcomes of the National Walking Strategy for Scotland⁵ and the subsequent commitments made by the Scottish Government¹⁶ set an inspiring example for all governments.

Half full or half empty – or both?

Do these papers in BJSJ signal substantial progress since the Morris and Hardman review¹⁷? Some will say no and point to the many car-dominated cities with no signs that this will change. We see the bottle as both half full and half empty - the work included in this Special Issue reflects substantial progress and points to *large* gaps in knowledge, practice, and promotion of walking. It is clear that the research and policy investment in understanding and realising the full potential of walking for individual and planetary health and social cohesion is insufficient.

We are confident that this Special Issue of BJSJ is a much needed extension of Jerry Morris' and Adrienne Hardman's legacy that will inspire researchers, will motivate practitioners, and will be a call for action policy makers' and funding bodies' to reinstate the act of walking to what was always meant to be for humans: the healthy, sociable, convenient, fun, and environmentally sound option

for moving from place to place. That option also happens to be “...the main option for increasing physical activity in sedentary populations” as Morris and Hardman put it in their original text¹.

It is never too late to put Hippocrates’ lesson¹⁷, which we upgrade for the 21st century as “Walking is Humanity’s best medicine”, into public health and policy practice. It is the shameless ambition of this Special Issue to ignite some serious discussion towards this end.

REFERENCES

1. Morris JN, Hardman AE. Walking to health. *Sports medicine (Auckland, NZ)* 1997;23(5):306-32. [published Online First: 1997/05/01]
2. World Health Organisation. Global Physical Activity Action Plan, draft 2 (penultimate) 2017 [Available from: <http://www.who.int/entity/ncds/governance/Global-action-plan-on-PA-DRAFT-2-Dec-2017.pdf?ua=1> accessed March 22nd 2018.
3. Bull FC, Hardman AE. Walking: a best buy for public and planetary health. *British Journal of Sports Medicine* 2017 doi: 10.1136/bjsports-2017-098566
4. Hunter RF, Ball K, Sarmiento OL. Socially awkward: how can we better promote walking as a social behaviour? *British Journal of Sports Medicine* 2018 doi: 10.1136/bjsports-2017-098564
5. Campbell A, Calderwood C, Hunter G, et al. Physical activity investments that work—Get Scotland walking: a National Walking Strategy for Scotland. *British Journal of Sports Medicine* 2017 doi: 10.1136/bjsports-2017-098776
6. Oja PK, P.; Murtagh, E.; Murphy, M.; Foster, C.; Sylvia, T. . The effects of of frequency, intensity, duration and volume of walking interventions on CVD risk factors: A systematic review and meta-regression analysis of randomized controlled trials among inactive healthy adults. *British Journal of Sports Medicine* 2018
7. Ding D, Nguyen B, Learnihan V, et al. Moving to an active lifestyle? A systematic review of the effects of residential relocation on walking, physical activity, and travel behaviour. *British Journal of Sports Medicine* 2018
8. Foster C, Kelly P, Hamish R, et al. What works to promote walking at the population level? A systematic review. *British Journal of Sports Medicine* 2018
9. Tudor-Locke C, Han H, Aguiar E, et al. How fast is fast enough? Walking cadence (steps/min) as a practical estimate of intensity in adults: a narrative review. *British Journal of Sports Medicine* 2018
10. Stamatakis E.; Kelly P, Strain, T.; Murtagh, E.M., Ding, D.; , Murphy MH. Self-rated walking pace and all-cause, cardiovascular disease and cancer mortality: individual participant pooled analysis of 50 225 walkers from 11 population British cohorts. *British Journal of Sports Medicine* 2018
11. The Lancet Planetary H. Welcome to The Lancet Planetary Health. *The Lancet Planetary Health*;1(1):e1. doi: 10.1016/S2542-5196(17)30013-X
12. Kelly PW, C.; Niven, A.; Hunter, R.; Mutrie N.; Richards, J. Walking on sunshine: scoping review of the evidence for walking and mental health. *British Journal of Sports Medicine* 2018
13. Patel MS, Asch DA, Volpp KG. Wearable devices as facilitators, not drivers, of health behavior change. *JAMA* 2015;313(5):459-60. doi: 10.1001/jama.2014.14781

14. Ioannidis J. Next-generation systematic reviews: prospective meta-analysis, individual-level data, networks and umbrella reviews. *British Journal of Sports Medicine* 2017;51(20):1456-58. doi: 10.1136/bjsports-2017-097621
15. Stamatakis E, Murray A. Launch of new series: bright spots, physical activity investments that work. *British Journal of Sports Medicine* 2017;51(19):1388-88. doi: 10.1136/bjsports-2017-098096
16. Campbell AY, H.; Brannen, R.; Gray, P.; Hunter, G.; Murray, A. Tackling vehicle emissions and physical inactivity. Scottish Government doubles active travel budget. *British Journal of Sports Medicine* (In Press) 2018 (Not part of the walking special issue)
17. Batman DC. Hippocrates: 'Walking is man's best medicine!'. *Occupational medicine (Oxford, England)* 2012;62(5):320-2. doi: 10.1093/occmed/kqs084 [published Online First: 2012/07/06]