

Physical activity in older people: better late than never, but better early than late

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Cardiovascular disease (CVD) still represents the leading cause of mortality and morbidity in the world¹; therefore, effective preventive strategies are needed. It is well known that physical activity (PA), regardless of sex, or ethnicity is associated with increased longevity and decreased risk of CVD.² However, studies that have investigated PA exclusively in the elderly remain scarce. As a consequence, opportunities remain to refine our understanding of the association of PA, and dose of PA, in older people, with risk of CVD. A better understanding of whether exercise in late life may still promote healthy ageing is important given the increasing life expectancy and the significant impact of CVD-related morbidity on the individual and on healthcare resources.

In the journal, Barbiellini Amidei *et al*³ (CIT) presented the results of the 'Progetto Veneto Anziani-Pro.V.A.' study which evaluated a cohort of 2754 Italians aged 65 years or older (mean age 75.1±7 years), with a baseline assessment in 1995–1997 and follow-up visits at 4 and 7 years and extended surveillance to 2018. In this cohort study, the authors evaluated whether the persistence of an active lifestyle over time, dose of PA and increasing or decreasing levels of PA (ie, PA trajectories) were associated with a reduced risk of CVD (coronary heart diseases, heart failure and stroke) and overall mortality.

The study showed that the incidence rates of cardiovascular events were lower among both active (defined as more than 20 min of moderate to vigorous physical activity per day) men and women, and both men and women had significant lower mortality risks, an indisputable endpoint. Increasingly active trajectories of PA were also associated with significantly lower mortality risk. Analysing the dose–response association of continuous minutes of weighted moderate to vigorous physical activity per day at baseline, the authors observed a reduction in the risk

of incident coronary artery disease and heart failure, which was especially evident between 20 and 40 min. Interestingly, the risk reduction of any incident cardiovascular event associated to an active lifestyle in men and to at least 20 min of PA per day was most marked at 70 years and only moderately reduced at 75 years, while no sign of correlation was observed at 80 and 85.

This study reveals important concepts: the persistence of an active life, or an increasing level of PA in older people may improve prognosis; however, this potential benefit is mostly evident when an active lifestyle is present early in late life.

PA is able to improve endothelial function, enhancing the nitric oxide-mediated vasodilation and vasomotor function,⁴ and may decrease thrombosis by reducing platelet aggregation and adhesiveness⁵; however, the detailed mechanisms by which PA can reduce the future risk of CVD remain not fully understood. The favourable effect of PA may be simply explained by its capability of slowing down the atherosclerosis process through a better control of blood pressure, blood glucose level, lipid profile; however, this may require earlier and longer exposure to be effective in outcomes reduction. These data should therefore encourage health professional to play an active role in the early assessment of PA and to motivate

sedentary individuals to begin and maintain adequate PA early in life to obtain significant cardiovascular and mortality benefits. The importance of routine assessment and promotion of PA as a standard in healthcare has been recently strongly recommended.⁶

Wisely, given the growing interest in gender-specific medicine,⁷ the authors presented stratification of all the main analyses by sex, including estimates of PA and outcomes for both men and women. Interestingly, the magnitude of the studied associations was greater among men. While PA is known to be beneficial both in men and women,⁸ sex-specific modulation of the cardiovascular system could contribute to some heterogeneous effects of PA on cardiovascular outcomes in older adults. Moreover, in the studied population, men were more likely to be physically active than women.

Surprisingly, risk reduction was observed mainly for coronary heart diseases and heart failure events but not for stroke despite stroke shares numerous common risk factors with ischaemic heart disease. The higher prevalence of atrial fibrillation in older people and the consequent higher risk of cardioembolic stroke could dilute the effect of PA on stroke occurrence in late life. Moreover, the lower incidence of stroke compared with other endpoints over the study period could be also a reason to explain the lack of association. Further investigations should focus on the association between PA intensity and duration and stroke risk in older people.

In this study, as in many previous observational studies, data on PA were collected by means of a questionnaire and investigators quantified PA in 'moderate' to 'vigorous'. PA monitoring with wearable

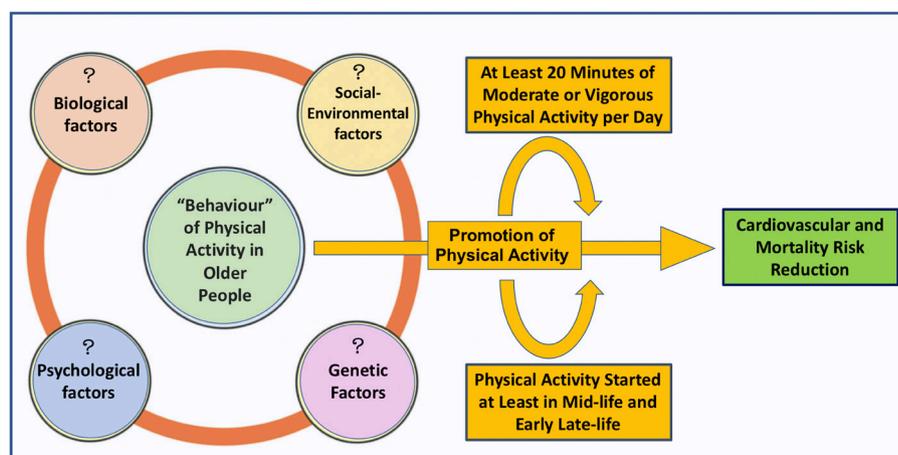


Figure 1 Relationship between 'behaviour' of physical activity, the promotion of physical activity and physical activity level to reduce cardiovascular and mortality risk.

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technology has the potential to overcome this limitation and may offer objective information regarding PA, as minutes of activity and intensity levels, which can be used for future research. Moreover, the integration of performance measures into electronic health records may provide new opportunities to enhance patient counselling in clinical practice.

Understanding which are the multiple factors that influence PA levels is complex and remains an evolving area of research. Comorbidities and joint pain may be considered common motives in older people to be inactive and these factors could also contribute to the general age-related decline in PA. Conversely, a physically active lifestyle prior to old age may reduce the risk of age-related motor decline. However, the 'behaviour' of PA includes biological but also social, psychological, environmental and probably genetic factors.⁹

The 'behaviour' of PA, the 'Promotion' of PA and the achievement of PA recommendations are strictly related (figure 1). A better comprehension of the impact of these factors could contribute to a better planning of health interventions to address both the challenges of individual behaviour change and the challenges of overcoming environmental barriers, in order to facilitate the societal adoption of a physically active lifestyle also in late life. Indeed, the health benefits of PA are multiple and are present also outside the cardiovascular system, including

osteoporosis and hip-fracture prevention, reduction in anxiety and depression, etc.

Barbiellini Amidei and coauthors are to be congratulated for having showed, in this 20-year follow-up cohort study of elderly people, that 'movement is medicine' also in late life. Even a small amount of PA may confer beneficial effects in older people, but if undertaken early rather than late. Contrasting physical inactivity also in mid and early late life remains a priority at local, regional, national and international levels in order to reduce the risk of CVD and improve global health.

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