

To: Neighbourhoods and City Development

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Subject: Essential Evidence on a page No 93: Longevity and walking

Top line: More leisure time physical activity is associated with longer life expectancy across a range of activity levels and body weights. Walking is a key means through which many people can reduce their risk of premature death.

In recent decades, physical activity levels have declined in the United Kingdom and in other developed and developing nations. Such declines in activity levels could potentially reduce population life expectancy, but this is difficult to quantify because the degree to which the full range of physical activity in different populations is associated with life expectancy remains unclear. Many studies have examined the association between physical activity and risk of premature mortality. These studies suggest that physical activity provides a 30% risk reduction among active people. Few studies, however, have quantified the years of life gained at distinct physical activity levels, and estimates ranged from 2 to 4 years gained using a high versus low level of physical activity. Limitations of these studies include restriction to a single ethnic group, small sample size, and use of broad physical activity categories. Moreover, they examined different physical activity levels and/or types, complicating efforts to define a straightforward public health message.

One recent study examined distinct levels of leisure time physical activity of moderate to vigorous intensity in relation to risk of premature death and life expectancy combining data from six studies comprising more than 650,000 participants of which 82,000 died during the study period.¹ This large sample size allowed a calculation of risk of premature death and years of life gained after age 40. The results showed that a high level of moderate to vigorous physical activity was associated with a lower risk of death during follow-up. Compared to no leisure time physical activity, low levels of such physical activity resulted in life expectancies being higher by 1.8 years. Levels at or just above that recommended by guidelines, of a minimum of 150 minutes of at least moderate physical activity each week, were associated with even lower risks of premature death and higher life expectancies (3.4 years higher). Finally, levels at two and three or more times the minimum recommended level were associated with further, albeit diminishing, reductions in risk of premature death. Life expectancies were higher by 4.2 and 4.5 years for those participating in such levels of physical activity per week. A key means of gaining leisure time physical activity in this large participant study was through walking.

The study also assessed body weight and leisure time physical activity. The association between physical activity and life expectancy was evident at every level of body weight.² Combined together, a lack of activity and a high BMI (obese class) were associated with 7.2 years of life lost relative to meeting recommended activity levels and being normal weight. For comparison, long term cigarette smoking reduces life expectancy by approximately 10 years. The findings highlight the important contribution of physical activity to longevity.

¹ Moore, S. et al 2012 Leisure Time Physical Activity of Moderate to Vigorous Intensity and Mortality: A Large Pooled Cohort Analysis, *PLOS Medicine*, 9:11: e1001335

² Body weight is generally defined through Body Mass Index (BMI) where a BMI of 18.5-24.9 is 'healthy' 25-29.9 is 'overweight' and 30 and above is 'obese'.