Public release date: 11-Jul-2006
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JAMA and Archives Journals

Higher levels of common daily activity associated with lower risk of death

Older adults who expend more energy through any daily activity, including non-exercise activity, have a lower rate of death than adults who are less active, according to a study in the July 12 issue of JAMA.

Observational studies have shown that older adults who report low physical activity levels are at a higher risk of death compared with those who report moderate or high levels of activity. These findings have been based on questionnaires asking about physical activity levels, which may not be recalled accurately and are unable to account for many types of daily activity, according to background information in the article. Self-reported physical activity does not provide accurate estimates of absolute amounts of activity (kilocalories per day) and thus is less precise in determining whether higher levels of total activity-induced energy expenditure offer survival advantages.

Todd M. Manini, Ph.D., of the National Institute on Aging, Bethesda, Md., and colleagues conducted a study to determine the association of free-living activity energy expenditure with death from all causes in a group of 302 high-functioning, community-dwelling older adults (aged 70-82 years). The researchers measured energy expenditure over a two week period using a technique that includes determining the rate at which certain isotopes of hydrogen and oxygen, given as "doubly labeled" water, are eliminated from the body as carbon dioxide, a direct measure of total energy expenditure. The resting metabolic rate was also measured. Participants were followed up over an average of 6.15 years (1998-2006). Fifty-five participants (18.2 percent) died during follow-up.

The researchers found that, after adjusting for various factors, higher levels of activity energy expenditure and physical activity were associated with a lower risk of death. Compared with the third of individuals with the lowest activity energy expenditure, those in the highest third had a 69 percent lower risk of death. The absolute risk of death was 12.1 percent in the highest tertile of activity energy expenditure, 17.6 percent in the middle, and 24.7 percent in the lowest tertile. According to self-reports,

individuals expending higher levels of free-living activity energy were more likely to work for pay and climb stairs but self-reported high-intensity exercise, walking for exercise, walking other than exercise, volunteering, and caregiving did not differ significantly across the activity energy expenditure tertiles. The authors suggest that this lack of relationship is likely due to the inaccuracies of self-reported activity levels.

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Editor's Note: This research was supported by the Intramural Research Program of the National Institutes of Health, National Institute on Aging, with additional support from the National Institute of Diabetes and Digestive and Kidney Diseases.

Editorial: Objectively Measured Physical Activity and Mortality in Older Adults

In an accompanying editorial, Steven N. Blair, P.E.D., of the Cooper Institute, Dallas, and William L. Haskell, Ph.D., of the Stanford University School of Medicine, Stanford, Calif., comment on the findings of Manini and colleagues.

"Our study suggests that any activity energy expenditure in older adults can help lower mortality risks ‧" the authors write. "Efforts to increase or maintain free-living activity energy expenditure will likely improve the health of older adults." (JAMA. 2006;296:171-179. Available pre-embargo to the media at http://www.jamamedia.org/)

"Higher levels of activity energy expenditure appear to be protective, and it is relevant to discuss how much and what type of physical activity is required to achieve these benefits. Ultimately, public health experts should consider how these results can be translated into recommendations for individuals."

"‧Manini et al's conclusion that 'simply expending energy through any activity may influence survival in older adults' is provocative and if documented by future research would have major implications for physical activity recommendations. However, such a conclusion needs to be verified in studies that would combine activity energy expenditure assessed by doubly labeled water and the intensity profile determined using recently developed accelerometer [an instrument for measuring the rate of change of velocity per unit of time] technologies." (JAMA. 2006;296:216-218. Available pre-embargo to the media at http://www.jamamedia.org/)