

# Moderate exercise in middle and older age cuts time spent in hospital

6 May 2020



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Men and women aged 40-79 are at significantly lower (25-27%) risk of long or frequent hospital admissions if they do some form of physical activity, a new study suggests.

Inactive participants in the study spent just over 4 days more in [hospital](#) over the next ten years than those who did at least some physical activity, whether for work or leisure. And similar results were observed 10 years later when the same participants were 50-90 years old.

The study, by researchers at the University of Cambridge's Department of Public Health and Primary Care and MRC Epidemiology Unit, calculates that for every inactive person who started to take at least some exercise, the NHS could save around £247 per year. This would equate to around 7% of the UK's per capita health expenditure.

The findings, published today (6 May) in *BMC Geriatrics*, are based on a general British population cohort study of 25,639 men and women aged 40-79 living in Norfolk and recruited from general practices between 1993 and 1997.

The researchers found that in the first ten years [active participants](#) were 25-27% less likely than inactive participants to have more than 20 hospital days or more than 7 admissions per year with similar results over the subsequent ten years. They also reported that in 9,827 study participants with repeated measurements, those who remained physically active or increased their activity were 34% less likely to spend 20 days in hospital.

Lead author Robert Luben from the Institute of Public Health says:

"Our study provides some of the clearest evidence yet that small, feasible increases in usual physical activity substantially reduce the future hospital usage of middle-aged and older people, and would significantly ease pressure on the NHS."

The study is one of relatively few to examine the physical activity (both occupational and leisure-time) of middle-aged and older men and women—validated against [heart rate](#) monitoring with individual calibration—and their subsequent healthcare use. As well as studying a large cohort over a long follow-up period, the researchers used record linkage to hospital data and took a range of demographic and lifestyle factors into account.

When recruited, participants completed a lifestyle questionnaire where they were asked about their physical activity. Occupational activity was assessed using a four category question ("sedentary", "standing", "moderate physical work" and "heavy manual work") with examples such as office worker, shop assistant, plumber and construction worker respectively.

Leisure activity in both summer and winter was assessed from the number of hours per week spent cycling, attending keep fit classes or aerobics and swimming or jogging. Estimated average hours of leisure activity was calculated as the mean of summer and winter activities. Based on a score

(validated using heart rate monitoring with individual calibration) combining leisure and occupational elements, individuals were categorised as "inactive", "moderately inactive", "moderately active" and "active".

The study found that those with a physical activity score of at least "moderately inactive" had fewer hospital admissions and fewer days in hospital, than those who were "inactive".

While previous studies have suggested that pre-admission physical activity programmes may lower duration of hospital stay, these are short term, require funding and are targeted at a limited number of individuals. But these new findings indicate that usual [physical activity](#) patterns in the general population predict hospital usage over the next two decades.

The researchers acknowledge that participants may be physically inactive because of known or preclinical illness which may also predispose them to increased later hospitalisation. But sensitivity analyses excluding those with a self-reported chronic disease at baseline (heart attack, stroke or cancer), and excluding hospital admissions occurring in the first five years of follow-up, did not differ materially from the main findings.

**More information:** Robert Luben et al, Usual physical activity and subsequent hospital usage over 20 years in a general population: the EPIC-Norfolk cohort, *BMC Geriatrics* (2020). [DOI: 10.1186/s12877-020-01573-0](#)

Provided by University of Cambridge

APA citation: Moderate exercise in middle and older age cuts time spent in hospital (2020, May 6) retrieved 4 May 2021 from <https://medicalxpress.com/news/2020-05-moderate-middle-older-age-spent.html>

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