Batty, GD; Lee, IM; (2002) Physical activity for preventing strokes - Better designed studies suggest that it is effective. BMJ, 325 (7360). pp. 350-1. ISSN 1468-5833 DOI: https://doi.org/10.1136/bmj.325.7360.350

Downloaded from: http://researchonline.lshtm.ac.uk/17476/

DOI: https://doi.org/10.1136/bmj.325.7360.350

Usage Guidelines:

Please refer to usage guidelines at http://researchonline.lshtm.ac.uk/policies.html or alternatively contact researchonline@lshtm.ac.uk.

Available under license: Creative Commons Attribution Non-commercial http://creativecommons.org/licenses/by-nc/3.0/
Physical activity for preventing strokes

Better designed studies suggest that it is effective

Stroke remains the most common life threatening neurological disorder, accounting for about 10% of all deaths worldwide.1 This is despite a decline in mortality rates due to stroke in most industrialised countries since the early 1900s owing to a decrease in case fatality or incidence, or both. Stroke is a leading cause of disability, and its treatment entails prolonged hospitalisation, with a commensurate financial toll. Preventing strokes is therefore of public health and economic importance.

1 Carvel J. Milburn hails more private links for NHS. Guardian 2002; p 7, 10 January.
Although genes may play a part in predicting risk of stroke, the observation that individuals who migrate have the same rates of stroke as the people in their host country implicates environmental risk factors. Epidemiological studies have identified modifiable risk factors for stroke such as raised blood pressure, obesity, glucose intolerance, smoking, and alcohol abuse. Ischaemic stroke (the commonest type) and ischaemic heart disease share similar pathophysiological traits. Clear evidence links physical activity to ischaemic heart disease. A sedentary lifestyle is therefore a possible risk factor for stroke.

The association between physical activity and stroke was first described 35 years ago in a report from the Harvard alumni study, a longitudinal study of male former college students. Alumni who had been athletes in college experienced less than half the risk of fatal stroke compared with the non-athletes. An alternative explanation—that sedentary men are more likely to smoke and drink alcohol to excess than active men, placing them at higher risk of stroke—was addressed in a recent follow up of the same cohort in which their physical activity was assessed in more detail. After statistical adjustment for these differences, physical activity continued to be inversely related to the incidence of stroke. Similar observations have been made in other populations including British men and US women.

U-shaped and null associations between physical activity and stroke have also been reported. These inconsistent findings may have several explanations. Firstly, most investigators have adjusted for characteristics that may mediate some of the beneficial effects of physical activity on stroke, such as blood pressure. This overadjustment could result in the lack of difference seen in stroke rates across groups with varying levels of activity. Secondly, some studies are hampered by a rudimentary assessment of physical activity and small numbers of strokes.

Thirdly, with one exception, studies have not accounted for changes in physical activity over time and could result in an underestimation of the association between activity and stroke. Fourthly, the discrepant pathophysiological characteristics of the major subtypes of stroke—iscchaemic and haemorrhagic—make a differential relation with physical activity plausible. Studies conducted among populations varying in age, sex, ethnicity, and socioeconomic position are likely to encounter different distributions of the subtypes of stroke. This may result in inconsistent associations when all strokes are modified in several places, including schools (walking to school initiatives, improved provision for physical education), recreational areas (more cycle lanes), the workplace, and general practices.

G David Batty 

G David Batty

I-Min Lee

We thank Jerry Morris and Gerry Shaper for their comments on an earlier draft.