



Long working hours, stroke and coronary heart disease

A meta-analysis found that working 55 hours a week or more was associated with an increased risk of stroke and a smaller increase in the risk of coronary heart disease.

Overview:

- Working 49–54 hours a week was associated with a 27% higher risk of stroke than working 35–40 hours a week, with the risk 33% higher in people who worked 55 hours or more a week.
- Working 55 hours a week or more was associated with a 13% increase in the risk of incident coronary heart disease.
- This study highlights the importance of employers' responsibilities towards the health and wellbeing of their staff, particularly around duration and intensity of work.



Background: Working long hours, such as 10 or more hours a day or more than 40 hours a week, has been implicated in coronary heart disease ([Virtanen et al. 2012](#)). Whether a link exists between long working hours and stroke is less clear.

Current advice: The [European Working Time Directive](#) limits working hours for people in European Union countries to an average of 48 hours a week, with specified breaks and time for rest.

The NICE guideline on [workplace health](#) recommends incorporating health and wellbeing in all relevant corporate policies and communications; for example, by ensuring employees work reasonable hours and have regular breaks. Policies should be developed to support the workplace culture, such as respect for work–life balance.

The NICE pathway on [workplace health](#) brings together all related NICE guidance and associated products on the area in a set of interactive topic-based diagrams.

New evidence: A meta-analysis by [Kivimäki et al. \(2015\)](#) considered the effect of long working hours on incident stroke and coronary heart disease.

Published studies were identified by a literature search and supplemented by unpublished individual-level data held by 2 consortia and the UK Data Service. The final dataset comprised 5 published and

20 unpublished prospective cohort studies from Europe (including the UK), the USA, Australia and Israel.

A total of 17 studies were identified for the analysis of long working hours and incident stroke. These studies comprised 528,908 men and women, 1722 of whom had a stroke during mean follow-up of 7.2 years. A pooled analysis of data from 14 of these studies (n=520,925) found that working 55 hours a week or more was associated with an increased risk of incident stroke compared with working 35–40 hours (relative risk [RR]=1.33, 95% confidence interval 1.11 to 1.61, p=0.002).

The link between long working hours and stroke was stronger when more hours were worked (dose–response effect). The association was not significant for people who worked 41–48 hours a week (RR=1.10, 95% CI 0.94 to 1.28, p=0.24). The link became significant for people who worked 49–54 hours (RR=1.27, 95% CI 1.03 to 1.56, p=0.03) and was strongest for people who worked 55 hours or more (RR=1.33, 95% CI 1.11 to 1.61, p=0.002).

A total of 25 studies comprising 603,838 men and women were identified for the analysis of long working hours and incident coronary heart disease. Overall, 4768 of these people had an event during a mean follow-up of 8.5 years. A pooled analysis of data from 22 of these studies (n=598,470) showed that working 55 hours a week or more was associated with a small increase in the risk of incident coronary heart disease compared with working 35–40 hours (RR=1.13, 95% CI 1.02 to 1.26, p=0.02).

Strengths of this meta-analysis include that sensitivity analyses found no evidence of significant bias from reverse causation, confounding, outcome ascertainment, publication status, geographical region, loss to follow-up or study quality. However, participants in the unpublished studies self-reported working hours and provided this information only once.

Commentary by Dr Justin Varney, Interim Deputy Director of Health and Wellbeing (Healthy People), Public Health England:

“The relationship between work and health is generally a positive one: being in work is better than being unemployed. However being in bad employment can have a significant impact on health as well. This new evidence reinforces the importance of employers understanding their responsibilities to protect and enable the health and wellbeing of their staff. This research reiterates that the intensity and duration of work is a factor that affects people’s physical health as well as their mental health.

“The evidence for what constitutes ‘good work’ is growing quickly. The characteristics are clear: a living wage; an element of control over work; support for training and development; flexibility; protection from adverse working conditions; strategies to prevent stress and ill health; and support for those who are sick and disabled to return to work and remain in work ([Marmot et al. 2010](#)).

“There are significant challenges in the UK in embedding employee health and wellbeing beyond workplace safety into the business landscape. Over 99% of businesses in the UK are small and medium enterprises, employing less than 250 people ([Department for Business, Innovation & Skills 2015](#)). Many of these businesses lack professional occupational health support and have yet to develop structured and evidence-based approaches to improving staff health and wellbeing ([The Work Foundation 2015](#)).

“However, increasingly there is support available. For example, the roll out of the [Fit for Work service](#) will provide free access to occupational health advice for employees who have been off sick for 4 weeks or more. The [Workplace Wellbeing Charter](#), which is increasingly available through local authorities across England, provides a simple and supported road map to getting the basics right.

“As this evidence base grows, it strengthens the arguments for better education in medical undergraduate and postgraduate curricula and training about the relationships between work and health. It also strengthens the need for a more coherent and robust multidisciplinary occupational

health infrastructure and a stronger emphasis at a local level on workplace wellbeing.

“Fundamentally this evidence reminds us that bad work can have potentially catastrophic physical health impacts. But these effects are preventable and the actions that are required to address the causes of ill health sit across a wide range of organisations and individuals. We have the evidence base for action, it is up to us as professionals to see that it gets used.”

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