

# Rotating night shift work can be hazardous to your health

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Night shift work has been consistently associated with higher risk for cardiovascular disease (CVD) and cancer. In 2007 the World Health Organization classified night shift work as a probable carcinogen due to circadian disruption. In a study in the current issue of the *American Journal of Preventive Medicine*, researchers found that women working rotating night shifts for five or more years appeared to have a modest increase in all-cause and CVD mortality and those working 15 or more years of rotating night shift work appeared to have a modest increase in lung cancer mortality. These results add to prior evidence of a potentially detrimental effect of rotating night shift work on health and longevity.

Sleep and the circadian system play an important role in cardiovascular health and [antitumor activity](#). There is substantial biological evidence that night shift work enhances the development of cancer and CVD, and contributes to higher mortality.

An international team of researchers investigated possible links between rotating night shift work and all-cause, CVD, and cancer mortality in a study of

almost 75,000 registered U.S. nurses. Using data from the Nurses' Health Study (NHS), the authors analyzed 22 years of follow-up and found that working rotating [night shifts](#) for more than five years was associated with an increase in all-cause and CVD mortality. Mortality from all causes appeared to be 11% higher for women with 6-14 or ≥15 years of rotating night shift work. CVD mortality appeared to be 19% and 23% higher for those groups, respectively. There was no association between rotating shift work and any cancer mortality, except for lung cancer in those who worked shift work for 15 or more years (25% higher risk).

The NHS, which is based at Brigham and Women's Hospital, began in 1976, with 121,700 U.S. female nurses aged 30-55 years, who have been followed up with biennial questionnaires. Night shift information was collected in 1988, at which time 85,197 nurses responded. After excluding women with pre-existing CVD or other than non-melanoma skin cancer, 74,862 women were included in this analysis. Defining rotating shift work as working at least three nights per month in addition to days or evenings in that month, respondents were asked how many years they had worked in this way. The prespecified categories were never, 1-2, 3-5, 6-9, 10-14, 15-19, 20-29, and >30 years.

According to Eva S. Schernhammer, MD, DrPH, currently Associate Professor of Medicine, Harvard Medical School, and Associate Epidemiologist, Department of Medicine, Brigham and Women's Hospital, Boston, this study "is one of the largest prospective cohort studies worldwide with a high proportion of rotating night shift workers and long follow-up time. A single occupation (nursing) provides more internal validity than a range of different occupational groups, where the association between shift work and disease outcomes could be confounded by occupational differences."

Comparing this work with previous studies, she

continues, "These results add to prior evidence of a potentially detrimental relation of rotating night shift work and health and longevity...To derive practical implications for shift workers and their health, the role of duration and intensity of rotating night [shift work](#) and the interplay of shift schedules with individual traits (e.g., chronotype) warrant further exploration."

**More information:** "Total and Cause-Specific Mortality of U.S. Nurses Working Rotating Night Shifts," by Fangyi Gu MD, ScD, Jiali Han, PhD, Francine Laden, ScD, An Pan, PhD, Neil E. Caporaso, MD, Meir J. Stampfer, MD, DrPH, Ichiro Kawachi, MD, PhD, Kathryn M. Rexrode, MD, MPH, Walter C. Willett, MD, DrPH, Susan E. Hankinson, ScD, Frank Speizer, MD, and Eva S. Schernhammer, MD, DrPH. It is published in the *American Journal of Preventive Medicine*, online ahead of Volume 48, Issue 3 (March 2015), [dx.doi.org/10.1016/j.amepre.2014.10.018](https://doi.org/10.1016/j.amepre.2014.10.018).

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