

## Road traffic noise and incident myocardial infarction: a prospective cohort study

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### Abstract:

Both road traffic noise and ambient air pollution have been associated with risk for ischemic heart disease, but only few inconsistent studies include both exposures.

**Methods:** In a population-based cohort of 57 053 people aged 50 to 64 years at enrolment in 1993-1997, we identified 1600 cases of first-ever MI between enrolment and 2006. The mean follow-up time was 9.8 years. Exposure to road traffic noise and air pollution from 1988 to 2006 was estimated for all cohort members from residential address history. Associations between exposure to road traffic noise and incident MI were analysed in a Cox regression model with adjustment for air pollution (NO(x)) and other potential confounders: age, sex, education, lifestyle confounders, railway and airport noise.

**Results:** We found that residential exposure to road traffic noise (L(den)) was significantly associated with MI, with an incidence rate ratio IRR of 1.12 per 10 dB for both of the two exposure windows: yearly exposure at the time of diagnosis (95% confidence interval (CI): 1.02-1.22) and 5-years time-weighted mean (95% CI: 1.02-1.23) preceding the diagnosis. Visualizing of the results using restricted cubic splines showed a linear dose-response relationship.

**Conclusions:** Exposure to long-term residential road traffic noise was associated with a higher risk for MI, in a dose-dependent manner.