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[Comparative Study](#) [BMJ. 2013 Oct 8;347:f5432. doi: 10.1136/bmj.f5432.](#)

Aircraft noise and cardiovascular disease near Heathrow airport in London: small area study

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Erratum in

BMJ. 2014;348:g3504

Abstract

Objective: To investigate the association of aircraft noise with risk of stroke, coronary heart disease, and cardiovascular disease in the general population.

Design: Small area study.

Setting: 12 London boroughs and nine districts west of London exposed to aircraft noise related to Heathrow airport in London.

Population: About 3.6 million residents living near Heathrow airport. Risks for hospital admissions were assessed in 12 110 census output areas (average population about 300 inhabitants) and risks for mortality in 2378 super output areas (about 1500 inhabitants).

Main outcome measures: Risk of hospital admissions for, and mortality from, stroke, coronary heart disease, and cardiovascular disease, 2001-05.

Results: Hospital admissions showed statistically significant linear trends ($P < 0.001$ to $P < 0.05$) of increasing risk with higher levels of both daytime (average A weighted equivalent noise 7 am to 11 pm, $L(Aeq)_{16h}$) and night time (11 pm to 7 am, L_{night}) aircraft noise. When areas experiencing the highest levels of daytime aircraft noise were compared with those experiencing the lowest levels (> 63 dB $v \leq 51$ dB), the relative risk of hospital admissions for stroke was 1.24 (95% confidence interval 1.08 to 1.43), for coronary heart disease was 1.21 (1.12 to 1.31), and for cardiovascular disease was 1.14 (1.08 to 1.20) adjusted for age, sex, ethnicity, deprivation, and a smoking proxy (lung cancer mortality) using a Poisson regression model including a random effect term to account for residual heterogeneity. Corresponding relative risks for mortality were of similar magnitude, although with wider confidence limits. Admissions for coronary heart disease and cardiovascular disease were particularly affected by adjustment for South Asian ethnicity, which needs to be considered in interpretation. All results were robust to adjustment for particulate matter (PM₁₀) air pollution, and road traffic noise, possible for London boroughs (population about 2.6 million). We could not

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distinguish between the effects of daytime or night time noise as these measures were highly correlated.

Conclusion: High levels of aircraft noise were associated with increased risks of stroke, coronary heart disease, and cardiovascular disease for both hospital admissions and mortality in areas near Heathrow airport in London. As well as the possibility of causal associations, alternative explanations such as residual confounding and potential for ecological bias should be considered.

Comment in

[Airport noise and cardiovascular disease.](#)

Stansfeld S.

BMJ. 2013 Oct 8;347:f5752. doi: 10.1136/bmj.f5752.

PMID: 24103539 No abstract available.

[Working at Heathrow airport may be a risk factor for cardiovascular disease.](#)

Coebergh J.

BMJ. 2013 Nov 19;347:f6794. doi: 10.1136/bmj.f6794.

PMID: 24252820 No abstract available.

[Study missed opportunity to confirm link in causality between noise and coronary heart disease.](#)

Moore N.

BMJ. 2013 Nov 19;347:f6788. doi: 10.1136/bmj.f6788.

PMID: 24255924 No abstract available.

[Authors' reply to Corbin, Moore, and Coebergh.](#)

Hansell AL, Gulliver J, Beevers S, Elliott P.

BMJ. 2013 Nov 19;347:f6795. doi: 10.1136/bmj.f6795.

PMID: 24255927 No abstract available.

[PM0.1 particles from aircraft may increase risk of vascular disease.](#)

Corbin JC.

BMJ. 2013 Nov 19;347:f6783. doi: 10.1136/bmj.f6783.

PMID: 24255931 No abstract available.

[Whether noise exposure causes stroke or hypertension is still not known.](#)

Kolstad HA, Stokholm ZA, Hansen AM, Christensen KL, Bonde JP.

BMJ. 2013 Dec 16;347:f7444. doi: 10.1136/bmj.f7444.

PMID: 24342541 No abstract available.

[Authors' reply to Kolstad and colleagues.](#)

Hansell AL, Ghosh RE, Elliott P.

BMJ. 2013 Dec 16;347:f7464. doi: 10.1136/bmj.f7464.

PMID: 24342963 No abstract available.

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