

Researchers find link between aircraft noise and heart disease

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Exposure to high levels of aircraft noise is associated with an increased risk of cardiovascular disease, find two studies published in *BMJ* today.

Previous studies of exposure to aircraft noise have examined the risk of hypertension, but few have examined the risk of cardiovascular disease and results are inconsistent. So researchers based in London set out to investigate the risks of stroke and heart disease in relation to aircraft noise among 3.6 million residents living near London Heathrow, one of the busiest airports in the world.

They compared hospital admissions and mortality rates for stroke, coronary heart disease, and cardiovascular disease from 2001-05 in 12 London Boroughs and nine districts west of London. Levels of aircraft noise for each area were obtained from the Civil Aviation Authority (CAA).

The researchers found increased risks of stroke, coronary heart disease, and cardiovascular disease for both hospital admissions and mortality, especially among the 2% of the study population exposed to the highest levels of daytime and night time aircraft noise.

Factors that could have affected the results, such as age, sex, ethnicity, social deprivation, smoking, air pollution, and road traffic noise were also taken into account. Accounting for the prevalence of people of South Asian ethnicity reduced the observed risks for hospital admissions for coronary heart disease and cardiovascular disease.

However, the authors were unable to distinguish between night time and daytime noise and say more research is needed to determine if night time noise that disrupts sleep may be a mechanism underlying these associations.

They stress that further studies are needed to test whether aircraft noise causes these increases in risk or if these results can be explained by some

other unmeasured (confounding) factors.

"How best to meet commercial aircraft capacity for London and other major cities is a matter of active debate," they say. "However, policy decisions need to take account of potential health related concerns, including possible effects of environmental noise on cardiovascular health."

In the second study, researchers at the Harvard School of Public Health and Boston University School of Public Health analysed data for over six million older American Medicare recipients (aged 65 years or more) living near 89 US airports in 2009.

Their aim was to investigate whether exposure to aircraft noise increases the risk of hospitalisation for cardiovascular diseases - and is the first study to analyse a very large population across multiple airports.

The researchers found that, on average, zip codes with 10 decibel (dB) higher aircraft noise had a 3.5% higher cardiovascular hospital admission rate. The association remained after adjustment for socioeconomic status, demographic factors, air pollution, and roadway proximity.

The results showed that participants exposed to the highest noise levels (more than 55 dB) had the strongest association with cardiovascular disease hospitalisations. Overall, 2.3% of hospitalisations for cardiovascular disease among older people living near airports were attributable to aircraft noise.

Despite some study limitations, the researchers say their results "provide evidence of a statistically significant association between exposure to aircraft noise and cardiovascular health particularly at higher exposure levels." And they suggest further research should investigate modifying factors at the airport or individual level.

In an accompanying editorial, Professor Stephen Stansfeld at Queen Mary University of London says these studies "provide preliminary evidence that aircraft noise exposure is not just a cause of annoyance, sleep disturbance, and reduced quality of life but may also increase morbidity and mortality from cardiovascular disease."

And he suggests that planners "need to take this into account when extending airports in heavily populated areas or planning new airports."

More information: Research:

www.bmj.com/cgi/doi/10.1136/bmj.f5432 and
www.bmj.com/cgi/doi/10.1136/bmj.f5561

Editorial: www.bmj.com/cgi/doi/10.1136/bmj.f5752

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