

# Science for Environment Policy

## Aircraft noise at night may lead to long-term health impacts

**Exposure to aircraft noise** at night for more than 20 years could increase the risk of heart disease and stroke, according to research conducted around six European airports. Risk also increased for those constantly exposed to road traffic, but this may have been caused by air pollution rather than noise.

**This study, part-funded by the EU-project ENNAH<sup>1</sup>**, investigated the possibility of a link between aircraft or road traffic [noise](#) and 'heart disease and stroke' defined as a medical diagnosis of angina, heart attack or stroke. The researchers took into account other possible influences on health, such as age, gender, body mass index, alcohol consumption and smoking.

To explore this link, the study analysed data from the earlier HYENA<sup>2</sup> project, also EU-funded, which was one of the largest studies to investigate noise exposure of people living near airports. HYENA studied 4816 adults aged between 45 and 70 years who had lived near airports for more than five years in Germany, Greece, Italy, the Netherlands, Sweden or the UK, for the period 2004-2006. It estimated the level of noise exposure from aircraft and roads using well-established models and collected medical data from participants, including reports of chronic diseases.

The ENNAH study, which involved 4712 of the original HYENA participants, found that there was a significant association between night-time aircraft noise and heart disease and stroke for those who had lived for 20 years or more at the same address. If the daytime exposure was also considered, the association between noise and health problems was less clear, suggesting that it is the night-time effects that are relevant in this case.

There was also an association between 24-hour exposure to road [traffic](#) noise and heart disease and stroke. However, when the researchers examined air pollution levels for a subset of 2401 participants in the Netherlands, Sweden and the UK, they concluded that the health problems could potentially also be explained by traffic-related air pollution.

The researchers also investigated whether air pollution was a driving factor in the association found between these [health](#) problems and night-time aircraft noise for those living at the same address for 20 years or more. However, in this case air pollution did not have any effect.

Based on findings from previous studies, the researchers suggest that the apparent health impacts of night-time aircraft noise may be due to negative effects on sleep, as lack of sleep has been linked to cardiovascular risk factors. Aircraft noise also causes high levels of annoyance, which can increase stress, again putting people at risk of heart disease or stroke. The researchers note that aircraft noise causes greater annoyance than road traffic noise, which could explain the weaker association of road traffic noise with these health problems.



**27 February 2014**  
**Issue 363**

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**Source:** Floud, S., Blangiardo, M., Clark, C. *et al.* (2013). Exposure to aircraft and road traffic noise and associations with heart disease and stroke in six European countries: a cross-sectional study. *Environmental Health*. 12:89.  
DOI:10.1186/1476-069X-12-89.

**Contact:**  
[a.hansell@imperial.ac.uk](mailto:a.hansell@imperial.ac.uk)

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**To cite this article/service:** "Science for Environment Policy": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.

1. The European Network for Noise and Health (ENNAH) is supported by the European Commission under the Seventh Framework Programme. See <http://www.ennah.eu/home?lang=en>

2. HYENA (Hypertension and Exposure to Noise near Airports) was supported by the European Commission under the Fifth Framework Programme. See <http://www.hyena.eu.com>.