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Multicenter Study [Eur Heart J.](#) 2008 Mar;29(5):658-64. doi: 10.1093/eurheartj/ehn013.

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Acute effects of night-time noise exposure on blood pressure in populations living near airports

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Abstract

Aims: Within the framework of the HYENA (hypertension and exposure to noise near airports) project we investigated the effect of short-term changes of transportation or indoor noise levels on blood pressure (BP) and heart rate (HR) during night-time sleep in 140 subjects living near four major European airports.

Methods and results: Non-invasive ambulatory BP measurements at 15 min intervals were performed. Noise was measured during the night sleeping period and recorded digitally for the identification of the source of a noise event. Exposure variables included equivalent noise level over 1 and 15 min and presence/absence of event (with L_{Amax} > 35 dB) before each BP measurement. Random effects models for repeated measurements were applied. An increase in BP (6.2 mmHg (0.63–12) for systolic and 7.4 mmHg (3.1, 12) for diastolic) was observed over 15 min intervals in which an aircraft event occurred. A non-significant increase in HR was also observed (by 5.4 b.p.m.). Less consistent effects were observed on HR. When the actual maximum noise level of an event was assessed there were no systematic differences in the effects according to the noise source.

Conclusion: Effects of noise exposure on elevated subsequent BP measurements were clearly shown. The effect size of the noise level appears to be independent of the noise source.

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