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Effects of aircraft noise exposure on obesity markers: results of the DEBATS longitudinal study in France

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ABSTRACT

The number of studies investigating the effects of noise exposure on obesity markers is relatively limited, and most are cross-sectional studies. The objective of this study was therefore to investigate the association between aircraft noise exposure and obesity on the one hand, and central obesity on the other. It was based on data collected in the DEBATS longitudinal study in France. The DEBATS study included 1,244 participants living near three French major airports. These participants answered in 2013, 2015 and 2017 detailed face-to-face interview. Obesity was defined based on WHO recommendations, i.e. as body mass index (BMI) ≥ 30 kg/m^2. Central obesity was defined according to the recommendations of the International Diabetes Federation as waist circumference ≥ 94 cm (men) and ≥ 80 cm (women). Outdoor aircraft noise levels were estimated at each home address using noise maps. Longitudinal analyses were performed using logistic mixed models adjusted on potential confounders. No significant association was found between exposure to aircraft noise and the risk of obesity as defined by BMI. In contrast, a positive and significant association was found between this same exposure and the risk of central obesity. This study involved a large number of participants and is one of the few longitudinal studies investigating the effect of noise levels on different markers of obesity. Like most studies, the results support the hypothesis of an association of noise exposure with central obesity but not with obesity as defined by BMI.

Keywords: aircraft noise, central obesity, obesity, body mass index.

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