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Association between transportation noise exposure and type 2 diabetes risk in the French E3N cohort

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ABSTRACT

Background: Exposure to transportation noise seems to be associated with a type 2 diabetes risk. Few studies have explored this association in Europe and even less in France in a prospective cohort. This is therefore the objective of the present study. **Methods:** Transportation noise exposure was estimated from two periodic strategic noise maps at the residence of 21,515 women from the French E3N cohort, residing in the Île-de-France or Auvergne-Rhône-Alpes regions between 2000 and 2014. L_{den} (day-evening-night level) indicator was used three noise sources: road, railway and aircraft. Incident type 2 diabetes cases were identified using follow-up questionnaires and validated using drug reimbursement insurance databases. **Results:** Over the period 2000 to 2014, at least 82%, 38% and 8% of women were exposed to average L_{den} of 58.9 ± 9.8, 44.7 ± 14 and 50.4 ± 4.7 dBA for road, railway and aircraft noise respectively. At least 81% of women are exposed to noise levels that exceed one of the WHO guidelines for transport noise. **Conclusions:** A significant proportion of the women from the E3N cohort who lived in Île-de-France or Auvergne-Rhône-Alpes during the period 2000-2014 were exposed to noise levels that exceeded WHO guidelines for transport noise. Results of the study for the association between type 2 diabetes risk and transportation noise exposure will be presented at the conference.

Key words: Transportation Noise, type 2 diabetes, women, epidemiology