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Residential proximity to freeways and autism in the CHARGE study.

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Source

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Abstract

BACKGROUND:

Little is known about environmental causes and contributing factors for autism. Basic science and epidemiologic research suggest that oxidative stress and inflammation may play a role in disease development. Traffic-related air pollution, a common exposure with established effects on these pathways, contains substances found to have adverse prenatal effects.

OBJECTIVES:

We examined the association between autism and proximity of residence to freeways and major roadways during pregnancy and near the time of delivery, as a surrogate for air pollution exposure.

METHODS:

Data were from 304 autism cases and 259 typically developing controls enrolled in the Childhood Autism Risks from Genetics and the Environment (CHARGE) study. The mother's address recorded on the birth certificate and trimester-specific addresses derived from a residential history obtained by questionnaire were geocoded, and measures of distance to freeways and major roads were calculated using ArcGIS software. Logistic regression models compared residential proximity to freeways and major roads for autism cases and typically developing controls.

RESULTS:

Adjusting for sociodemographic factors and maternal smoking, maternal residence at the time of delivery was more likely be near a freeway (≤ 309 m) for cases than for controls [odds ratio (OR)=1.86; 95% confidence interval (CI), 1.04-3.45]. Autism was also associated with residential proximity to a freeway during the third trimester (OR=2.22; CI, 1.16-4.42). After adjustment for socioeconomic and sociodemographic characteristics, these associations were unchanged. Living near other major roads at birth was not associated with autism.

CONCLUSIONS:

Living near a freeway was associated with autism. Examination of associations with measured air pollutants is needed.

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- [Autism spectrum disorders in relation to distribution of hazardous air pollutants in the san francisco bay area.](#)
- **Windham** GC, Zhang L, Gunier R, Croen LA, Grether JK.
Environ Health Perspect. 2006 Sep;114(9):1438-44.

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