



Science for Environment Policy

Children are more hyperactive if they live near busy roads

Children living close to busy roads may have an increased risk of hyperactivity. They may also have more emotional problems, especially if they are exposed to higher levels of noise during the night, according to research carried out on children's health in Germany.

Research on the negative health effects of noise on children has mainly focused on aircraft noise at school, but less is known about the impact of road traffic noise on children at home.

In this study, the researchers investigated the impact of road traffic noise at home on 10-year-old's mental health and behaviour, including problems of hyperactivity or inattention and emotional problems, such as being anxious, easily scared or unhappy. Information on the 872 children in this study came from two ongoing German population-based studies, [LISApplus](#)¹ and [GINIplus](#)², which are following the physical wellbeing of healthy children from birth to the age of 10 years and assess behavioural problems at the age of 10.

Using data from existing noise maps, the researchers assigned maximum and minimum levels of noise at the exterior wall exposed to the most noise (facing the street) and the exterior wall exposed to the least noise, at each child's home. The researchers chose two noise indicators: the night noise indicator to assess the disturbance of children's sleep by night-time noise and the day-evening-night noise indicator to measure overall noise annoyance.

They assessed the children for behavioural problems using a standardised questionnaire and various aspects of their behaviour were categorised as normal, borderline or abnormal.

The study concluded that being exposed to higher noise levels was associated with significantly greater problems of hyperactivity and inattention. The researchers also found that children were more likely to display emotional problems if they were exposed to higher noise levels.

In particular, night-time exposure to noise may have more adverse effects than exposure to day-time noise, because the body needs adequate sleep to remain healthy. The researchers also assessed the impact of night-time noise exposure on sleeping problems in a subgroup of 287 of the children. Children appeared to have more sleeping problems, especially falling asleep, with increasing exposure to night-time noise levels.

It is possible that road traffic noise levels that the researchers used do not necessarily reflect the actual noise levels the children were exposed to, for example, the researchers had no information about whether noise insulation had been installed in the houses.

A major strength of the study, the researchers say, is that it focused on the home - the environment where the children spent most of their time.



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Noise impacts
on health

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1. [LISApplus](#): The Influence of Life-style factors on the development of the Immune System and Allergies in East and West Germany Plus the influence of traffic emissions and genetics

2. [GINIplus](#): German Infant Study on the influence of Nutrition Intervention Plus environmental and genetic influences on allergy development.