



# Science for Environment Policy

## Reviewing the multiple impacts of noise pollution

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Noise impacts  
on health

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1. The RANCH (Road traffic and Aircraft Noise exposure and children's Cognition and Health) project was supported by the European Commission. See: [http://ec.europa.eu/research/quality-of-life/ka4/pdf/report\\_ranch\\_en.pdf](http://ec.europa.eu/research/quality-of-life/ka4/pdf/report_ranch_en.pdf)

**While occupational exposure to noise has declined**, 'social' exposure in the form of personal music players or rock concerts is estimated to have tripled for young people since the 1980s. A new review examines studies that have investigated noise sources, including environmental (e.g. traffic) and social (e.g. via headphones) sources. The review also explores research into the range of health effects beyond hearing impairments, such as annoyance and cardiovascular problems.

**Noise is ubiquitous to everyday life.** Exposure in the workplace is a common problem and as a result many countries have developed legislation to protect employees. The increase in social exposure to noise is worrying, say the review's authors, as there is now evidence that noise exposure when young can contribute to hearing loss in later life.

Hearing impairment as a result of noise exposure presents a serious public health problem; it is estimated that, worldwide, 1.3 billion people suffer from this condition and the World Health Organisation (WHO) estimates that 10% of the global population is currently exposed to noise levels that could lead to hearing impairment.

However, new treatments are under development. An oral drug, D-methionine, has shown good protection against hearing loss in animals and the review's authors predict that these kinds of treatments will be available for human use in the next 10 years.

In addition to hearing problems, the non-auditory health impacts of noise exposure, including annoyance, sleep disturbance, heart disease and cognitive impairment, are all causing increasing concern. Annoyance, which could be thought of as trivial, can in fact lead to anger, stress and exhaustion and, because of the large number of individuals affected, is estimated to be the second most important cause of health impacts due to environmental noise.

Sleep disturbance is thought to have the greatest effect on health because it can have impacts on alertness, performance at work and general quality of life. In fact, studies have suggested that noise levels at night may have a greater impact on long-term health than noise exposure during the day.

Cardiovascular disease, which includes high blood pressure, heart disease and stroke, has been clearly linked with long-term exposure to environmental noise. For instance, an analysis combining the results from many different studies found that an increase of 10 dB of transport noise (traffic and aircraft) can lead to an increase in risk of high blood pressure or heart disease of between 7 and 17%.

Finally, the results of over 20 studies have shown that environmental noise can affect children's learning and cognitive development. Exposure to road, rail and aircraft noise over long periods can reduce memory, reading ability and test performance. For example, as part of the EU-funded [RANCH](#) project<sup>1</sup>, a study was carried out on 2844 9-to-10 year-olds attending 89 schools near major airports in London, Amsterdam and Madrid. After accounting for variables such as socioeconomic status the results showed a clear link between noise exposure and reduced reading comprehension and memory.

