

Diesel exhaust associated with lethargy in offspring

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Breathing diesel exhaust during pregnancy is associated with sluggishness in offspring. Researchers writing in BioMed Central's open access journal *Particle and Fibre Toxicology* studied the effects of pollution exposure in mice, finding that the offspring of mothers who breathed diesel fumes while pregnant were less likely to show spontaneous movement.

Ken Takeda, from Tokyo University of Science, Japan, worked with a team of researchers to carry out the study in pregnant mice, randomly assigned to be exposed to diesel exhaust or filtered air. He said, "We then took ten random male pups from each group and monitored their movement at 10 minute intervals for 3 days. We found that the mice whose mothers had breathed the fumes showed significantly less spontaneous motor activity and that this inactivity was associated with alterations in [brain metabolism](#) of neurotransmitters".

Spontaneous movement rates are a validated model for measuring the effect of [brain activity](#) or neural transmission to peripheral muscles. For instance tranquilizers are known to diminish brain activity and this leads to a decrease in movement. The researchers speculate that certain components, such as [ultrafine particles](#), in the diesel exhaust may be translocated into the offspring of mice, disturbing the normal timetable of development in offspring and leading to the behavioral and physiological abnormalities seen in this study. Alternatively, or additionally, diesel exhaust exposure may affect the mother's behavior toward the pups after birth, which could also cause lethargy and altered

[brain chemistry](#).

Takeda concludes, "Further investigations are needed to clarify the critical factors or components responsible for the effects on offspring. Since the concentration of diesel exhaust we used was close to the environmental quality standard of air in Japan, these findings warrant a revisiting of present pollution standards in each country of the world".

More information: In utero exposure to a low concentration of diesel exhaust affects spontaneous locomotor activity and monoaminergic system in male mice, Tomoharu Suzuki, Shigeru Oshio, Mari Iwata, Hisayo Saburi, Takashi Odagiri, Tadashi Udagawa, Isamu Sugawara, Masakazu Umezawa and Ken Takeda, Particle and Fibre Toxicology 2010, 7:7; [doi:10.1186/1743-8977-7-7](https://doi.org/10.1186/1743-8977-7-7)

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