

Study suggests risk of ALS increases with more exposure to diesel exhaust

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People who are frequently exposed to diesel exhaust while on the job may have a higher risk of amyotrophic lateral sclerosis (ALS), and that risk may increase with greater exposure, according to a preliminary study released today that will be presented at the American Academy of Neurology's 70th Annual Meeting in Los Angeles, April 21 to 27, 2018.

"There is some suggestion from previous studies of occupation that workers in jobs with higher exposure to diesel exhaust may have a higher risk of ALS. However, no studies have directly looked at the relation between [diesel exhaust exposure](#) during different time points in life and ALS," said study author Aisha Dickerson, PhD, of Harvard T.H. Chan School of Public Health in Boston, Mass. "The overall risk of developing ALS is low, but our findings suggest that the greater the exposure to diesel exhaust, the greater the risk of developing ALS."

ALS is a rare neurologic disease that mainly affects the nerve cells responsible for controlling voluntary muscle movement such as walking or talking. ALS is a disease that gets worse over time and eventually leads to death, most often from respiratory failure. There is currently no cure for ALS.

For this study, researchers identified 1,639 people with an average age of 56 from the Danish National Patient Registry who were diagnosed with ALS between 1982 to 2013. Each person with ALS was then matched with 100 people of the same age and sex who did not have ALS. The researchers then gathered the employment history for each

person and calculated their estimated diesel exhaust exposure before each person was diagnosed with ALS or the same time period in the healthy participants. The estimated exposure was based on potential hazards for specific jobs, including service station attendants, bus drivers and construction workers. The study authors determined the cumulative amount of exposure to diesel exhaust participants had. They calculated exposure for both up to five and 10 years before the diagnosis time period, allowing for the time it may take for diesel exhaust to have an effect on the body.

The participants were divided into four groups based on amount of exposure to diesel exhaust. Men with any exposure to diesel exhaust at jobs held at least 10 years prior to their date of inclusion in the study were 20 percent more likely to have ALS than men with no exposure to the exhaust during the same time period. For men who had a greater than 50 percent likelihood of being exposed to exhaust based on their occupation, the link was stronger. That group was 45 percent more likely to develop ALS than those with no exhaust exposure at both five and 10 years prior to study inclusion. No associations were seen among women, although the types of jobs and even tasks performed in the same job can differ substantially for men and women.

The results were adjusted for other factors that could affect risk of ALS including socioeconomic status and the region of Denmark where a participant lived.

Dickerson said, "This type of exposure deserves more attention and study as we work to develop a better understanding of what causes ALS. Importantly, the general population can be exposed to diesel exhaust from traffic pollution. Understanding whether that exposure increases ALS risk is also an important question to pursue."

The study was supported by the National Institute of Environmental

Health Sciences and the National Institutes of Health.

The study does not show that diesel exhaust causes ALS; it only shows an association.

A limitation of this study was that it used a job exposure matrix to estimate occupational diesel exhaust levels and could not directly measure personal exposures. However, the authors note that any potential misclassification caused by this would likely have diminished the observed associations.

Provided by American Academy of Neurology

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