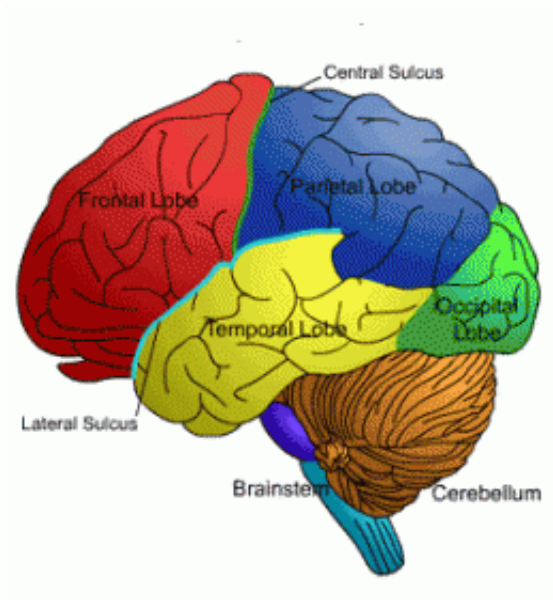


Brain may never fully recover from exposure to paint, glue, degreasers

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Brain diagram. Credit: dwp.gov.uk

People who are exposed to paint, glue or degreaser fumes at work may experience memory and thinking problems in retirement, decades after their exposure, according to a study published in the May 13, 2014, print issue of *Neurology*, the medical journal of the American Academy of Neurology.

"Our findings are particularly important because [exposure](#) to solvents is very common, even in industrialized countries like the United States."

said study author Erika L. Sabbath, ScD, of Harvard School of Public Health in Boston. "Solvents pose a real risk to the present and future cognitive health of workers, and as retirement ages go up, the length of time that people are exposed is going up, too."

The study involved 2,143 retirees from the French national utility company. Researchers assessed the workers' lifetime exposure to chlorinated solvents, petroleum solvents, and benzene, including the timing of last exposure and lifetime dosage. Benzene is used to make plastics, rubber, dye, detergents and other synthetic materials. Chlorinated solvents can be found in dry cleaning solutions, engine cleaners, paint removers and degreasers. Petroleum solvents are used in carpet glue, furniture polishes, paint, paint thinner and varnish. Of the participants, 26 percent were exposed to benzene, 33 percent to chlorinated solvents and 25 percent to petroleum solvents.

Participants took eight tests of their memory and thinking skills an average of 10 years after they had retired, when they were an average age of 66. A total of 59 percent of the participants had impairment on one to three of the eight tests; 23 percent had impairment on four or more tests; 18 percent had no impaired scores.

The average lifetime [solvent](#) exposure was determined based on historical company records, and the participants were categorized as having no exposure, moderate exposure if they had less than the average and high exposure if they had higher than the average. They were also divided by when the last exposure occurred, with those last exposed from 12 to 30 years prior to the testing considered as recent exposure and those last exposed 31 to 50 years prior considered as more distant exposure.

The research found that people with high, recent exposure to solvents were at greatest risk for memory and thinking deficits. For example,

those with high, recent exposure to chlorinated solvents were 65 percent more likely to have impaired scores on tests of memory and visual attention and task switching than those who were not exposed to solvents. The results remained the same after accounting for factors such as education level, age, smoking and alcohol consumption.

"The people with high exposure within the last 12 to 30 years showed impairment in almost all areas of memory and thinking, including those not usually associated with solvent exposure," Sabbath said. "But what was really striking was that we also saw some cognitive problems in those who had been highly exposed much longer ago, up to 50 years before testing. This suggests that time may not fully lessen the effect of solvent exposure on some memory and cognitive skills when [lifetime exposure](#) is high."

Sabbath said the results may have implications for policies on workplace solvent exposure limits. "Of course, the first goal is protecting the cognitive health of individual workers. But protecting workers from exposure could also benefit organizations, payers, and society by reducing workers' post-retirement health care costs and enabling them to work longer," said Sabbath. "That said, retired workers who have had prolonged exposure to solvents during their career may benefit from regular cognitive screening to catch problems early, screening and treatment for heart problems that can affect [cognitive health](#), or mentally stimulating activities like learning new skills."

Provided by American Academy of Neurology

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