

# Long term exposure to pesticides may be linked to dementia

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Long term exposure to pesticides may be linked to the development of dementia, suggests research published online in *Occupational and Environmental Medicine*.

The authors base their findings on 614 vineyard workers in South West France whose intellectual capacity was monitored for up to six years as part of the PHYTONER study.

This aims to track the impact of [pesticides](#) on the [cognitive abilities](#) of people in their 40s and 50s who have worked for at least 20 years in the [agricultural sector](#).

Levels of exposure to pesticides were based on job calendars and categorised as 'directly exposed' (mixing or applying pesticides, cleaning or repairing spraying equipment); 'certainly indirectly exposed' (contact with treated plants); 'possibly indirectly exposed' (work in buildings, offices, cellars); and 'not exposed' if they had done none of the above.

Just under 1000 workers enrolled in the study between 1997 and 1998, 614 of whom were monitored between 2001 and 2003. On both occasions they completed a questionnaire and nine "neurobehavioural" tests designed to measure memory and recall; language retrieval and verbal skills; and reaction time speeds.

One in five had never been exposed to pesticides as part of their job; over half had been directly exposed, and the remainder had been

possibly or certainly indirectly exposed.

Not unexpectedly, lower scores in some or all of the cognitive tests were associated with older age, lower levels of education, excessive alcohol intake, depression, and drug-taking on both occasions.

Around a fifth to half of the workers obtained higher scores in some of the tests; 15% to half obtained lower test scores over time, depending on the test.

But with the exception of two of the nine tests, those who had been exposed to pesticides were the most likely to perform worse second time around.

These workers were up to five times as likely to obtain lower test scores on both occasions, and they were twice as likely to register a drop of two points in the mini mental state exam (MMSE) - the initial test frequently used to determine if a person has dementia.

This decline in MMSE score "is particularly striking in view of the short duration of follow up and the relatively young age of the participants," say the authors, who add that previous research has already reported an association between pesticide exposure and poor performance for several of the tests used in this study.

"The mild impairment we observed raises the question of the potentially higher risks of injury in this population and also of the possible evolution towards neurodegenerative diseases such as Alzheimer's disease or other dementias," they say.

And they add: "Numerous studies have shown that low cognitive performances are associated with risk of [dementia](#)."

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