

# Association found between Parkinson's disease and pesticide exposure in French farm workers

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June 04, 2009 - The cause of Parkinson's disease (PD), the second most frequent neurodegenerative disease after Alzheimer's disease, is unknown, but in most cases it is believed to involve a combination of environmental risk factors and genetic susceptibility. Laboratory studies in rats have shown that injecting the insecticide rotenone leads to an animal model of PD and several epidemiological studies have shown an association between pesticides and PD, but most have not identified specific pesticides or studied the amount of exposure relating to the association.

A new epidemiological study involving the exposure of French farm workers to [pesticides](#) found that professional exposure is associated with PD, especially for organochlorine insecticides. The study is published in *Annals of Neurology*, the official journal of the American Neurological Association.

Led by Alexis Elbaz M.D., Ph.D., of Inserm, the national French institute for health research in Paris, and University Pierre et Marie Curie (UPMC, Paris 6), the study involved individuals affiliated with the French health insurance organization for agricultural workers who were frequently exposed to pesticides in the course of their work. Occupational health physicians constructed a detailed lifetime exposure history to pesticides by interviewing participants, visiting farms, and collecting a large amount of data on pesticide exposure. These included farm size, type of crops, animal breeding, which pesticides were used, time period of use, frequency and duration of exposure per year, and spraying method.

The study found that PD patients had been exposed to pesticides through their work more frequently and for a greater number of years/hours than those without PD. Among the three main

classes of pesticides (insecticides, herbicides, fungicides), researchers found the largest difference for insecticides: men who had used [insecticides](#) had a two-fold increase in the risk of PD.

"Our findings support the hypothesis that environmental risk factors such as professional pesticide exposure may lead to neurodegeneration," notes Dr. Elbaz.

The study highlights the need to educate workers applying pesticides as to how these products should be used and the importance of promoting and encouraging the use of protective devices. In addition to the significance of the study for those with a high level of exposure to pesticides, it also raises the question about the role of lower-level environmental exposure through air, water and food, and additional studies are needed to address this question.

Source: Wiley ([news](#) : [web](#))

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