

# Chronic exposure to organophosphate (OP) pesticides and neuropsychological functioning in farm workers: a review

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## Resumen

**Background:** Previous studies have demonstrated that acute poisoning from exposure to organophosphate (OP) pesticides in agricultural workers causes adverse health effects. However, neuropsychological and cognitive effects of chronic occupational exposure to OP pesticides remain controversial.

**Objective:** To identify, evaluate, and systematize existing evidence regarding chronic exposure to OP pesticides and neuropsychological effects in farmworkers.

**Methods:** Using the PubMed search engine, a systematic review process was implemented and replicated according to the PRISMA statement. Eligibility criteria included workers over 18 years of age exposed to OP pesticides as well as assessment of neuropsychological and cognitive functioning. Search terms were in English and Spanish languages and included organophosphate and workers.

**Results:** Of the search results, 33 of 1,256 articles meet eligibility criteria. Twenty-four studies found an association between chronic occupational exposure to OP pesticides and low neuropsychological performance in workers. We classified nine of the studies to have study design limitations. Studies indicated occupational exposure to OP pesticides is linked to difficulties in executive functions, psychomotor speed, verbal, memory, attention, processing speed, visual-spatial functioning, and coordination. Nine studies find no relationship between OP pesticides exposure and neuropsychological performance.

**Conclusions:** Overall, evidence suggests an association between chronic occupational exposure to

OP pesticides and neuropsychological effects. However, there is no consensus about the specific cognitive skills affected.

## Palabras clave

**Palabras clave de autor:** Organophosphate pesticides; Neuropsychological functioning; Occupational exposure; Workers

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