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Birds and Migrant Farmworkers Share the Consequences of Pesticide Usage

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72 million birds
are killed by
pesticides each
year.

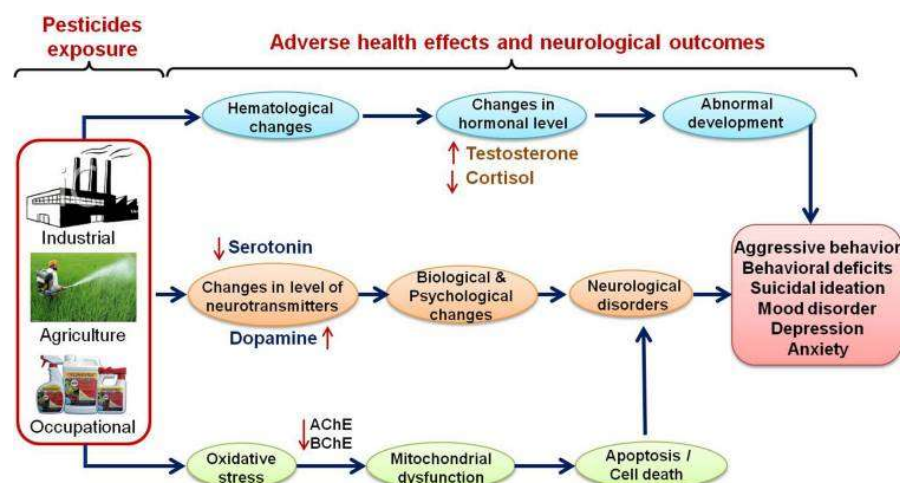
At least 300,000
farmworkers are
injured by
pesticides each
year.



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What is a Pesticide?

- Pesticides are chemicals (including neonicotinoids and organophosphates) or biological compounds used to eliminate, repel, or reduce the abundance of pests.
- Pesticide exposure amongst farmworkers is ubiquitous as both direct and indirect exposure. It is important to note, however, that acute and chronic exposure to pesticides leads to pesticide poisoning in wildlife and humans. **Both share similar responses to pesticide poisoning:**
 - **Pesticides delay development:** Fetal neurotoxic pesticide exposure in humans and hatchling exposure in birds results in neurological disabilities from early in life.
 - **Pesticides impair mental faculties:** When birds are exposed to pesticides, they struggle to navigate their migratory routes. When migrant farmworkers are regularly exposed to pesticides, over time they develop generalized anxiety and depression.
 - **Pesticides decrease metabolism:** Birds exposed to pesticides eat less food and lose more weight. Migrant farmworkers exposed to pesticides may become particularly vulnerable to diabetes and hypertension, which is exacerbated by their lifestyle and working conditions.



Acute and Chronic exposure to pesticides most apparent in agricultural workers can lead to long-term neurological disorders and, ultimately, anxiety and depression.

Kori et al., 2018

Unsafe Working and Living Conditions Put Farmworkers at Risk



Farmworkers must actively handle pesticide-coated seeds and pick crops including berries and leafy vegetables that cannot be harvested by machines. Many farmworkers are incentivized to pick large quantities of pesticide-treated plants each day as a result of a piece-rate system wherein they are paid per pound of food.

In 2020, farmworkers were designated as members of the essential workforce, which meant that states like California, Oregon, and Washington, farmworkers were required to work through extreme weather conditions including heatwaves and wildfires. Pesticides are absorbed and metabolized faster in warm conditions. The protective equipment (gloves, socks, shoes, and coverall) provided to farmworkers becomes less effective during warmer temperatures while becoming a risk for heat-related illness.

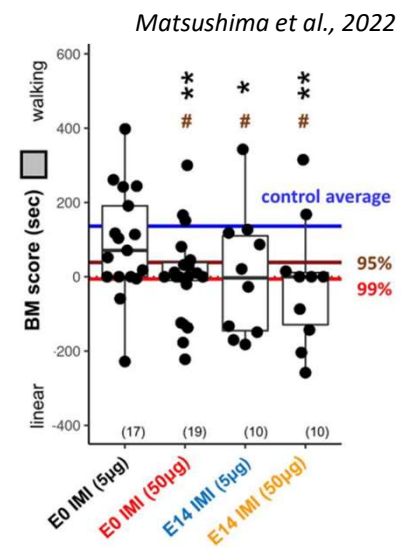
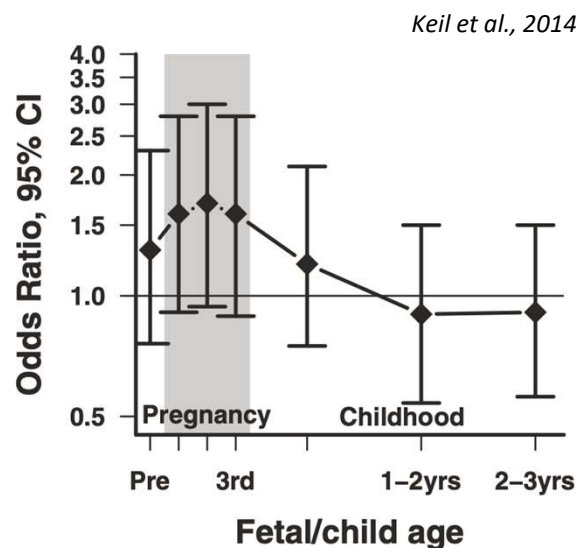
As a result, farmworkers would regularly expose roommates in crowded labor camps to pesticides during a global health crisis. Despite known threats and dangers, many farmworkers remain in the dark about the perils of their work and living environments.

Early Pesticide Exposure is a High Risk for Mental Disability

► The graph on the left shows that the risk of developing ADHD and autism spectrum disorder (ASD) symptoms when children are exposed to pesticides in the womb.

► The right figure shows the impact of pesticides exposure on motor coordination in hatchlings, which is a common sign of ASD in birds.

► The concentration of pesticide exposure in both figures is at or well below the permitted levels of exposure.



Take Action

- **Talk to your Legislators:** Ask your legislators to support the [Saving America's Pollinators Act](#), [Protect America's Children from Toxic Pesticides Act](#), and the [Fairness for Farm Workers Act](#).
- **Call Your State Representatives:** Reach out to your representatives to ask them to support local legislation that pushes for stronger regulations around pesticides and farmworkers rights.
- **Grow Your Produce:** Grow pesticide-free produce and resilient native species in your own backyard garden.
- **Support Local Farmers:** Support local farmers that avoid pesticide-coated seeds and grow native plants.
- **Reach out to the EPA:** Reach out to the EPA (pesticidequestions@epa.gov) and voice your support of greater regulations around pesticide-coated seeds and pesticide education programs.

• Keil, A. et al. (2014). Autism spectrum disorder, flea & tick medication, & adjustments for exposure misclassification: the CHARGE (Childhood Autism Risks from Genetics & Environment) case-control study. *Env. Health*, 13(3).
• Kori, R. et al. (2018). Neurochemical and Behavior Dysfunctions in Pesticide Exposed Farm Workers: A Clinical Outcome. *Indian Journal of Clinical Biochemistry*, 33(4).
• Matsushima, T. et al. (2022). Fetal blockade of nicotinic acetylcholine transmission causes autism-like impairment of biological motion preference in the neonatal chick. *Cerebral Cortex Communications*.