

## Environmental Toxins and Parkinson's

Can you get Parkinson's disease from your environment? Do you know if you are putting yourself in danger of getting it?

It is not known if Parkinson's disease is caused by a genetic mutation, environmental factors or a combination of the two. Links have been found between environmental toxins and the incurable, progressive neurological disease that greatly affects a person's ability to move, balance, and control their muscles.

When the symptoms of Parkinson's disease can be traced back to a particular source this is referred to as Parkinsonism. For some individuals, the symptoms of this disease begin to show themselves after prolonged exposure to chemicals that are either agricultural or industrial in nature. Sometimes symptoms take shape after constant blows to the head (such as to be found in the sport of boxing), incidence of carbon monoxide poisoning, and infections caused by a multitude of viruses. Parkinsonism can also relate to the use of prescription drugs used to treat epilepsy, depression, schizophrenia, and a host of other conditions.

Parkinson's disease tends to crop up more in rural areas. It is believed that environmental factors are to blame in part for that being the case. Many of these environmental factors come in the form of metals or compounds deemed toxic. Three pesticide products that have been found to be strongly connected to the incidence of Parkinson's disease include rotenone, maneb, and paraquat.

Rotenone is a plant-based insecticide commonly used by farmers. This pesticide has been shown to lead to disastrous results in the brain. It causes inflammation, which in turn leads to the dying off of dopaminergic neurons (dopamine-producing) which are the roadways of communication. Direct toxicity is administered to the neurons and causes damage.

Paraquat is an insecticide (or herbicide) that is similar to MPTP, which elicited Parkinson's-related symptoms in some people who had tried to produce the drug heroine but ended up making MPTP quite unintentionally. Today MPTP is used as a measure of the toxicity levels in other potentially harmful chemicals. Paraquat is sprayed on crops such as corn and soybeans (which are most often found to be growing in fields in the Midwestern United States), fruit, cotton, and a variety of other products.

Maneb, a dithiocarbamate fungicide, contains the heavy metal known as manganese. This metal was found to be connected to symptoms of Parkinson's disease. Maneb is often sprayed on lettuce, corn, potatoes, and tomatoes. Both maneb and paraquat are applied to corn on a regular basis, which means that this crop has double the chemicals.

Experiments done with mice showed that, when exposed to either paraquat or maneb alone, little if any damage to the brain occurred. but when exposed to the combination of paraquat and maneb, almost all of the symptoms of early Parkinson's disease in humans were noted. Although the mice used in the experiment appeared to be as healthy as they were before being exposed to the environmental toxins, in reality the dopamine neurons were being destroyed and dying off. Many farmers in the same geographical locations use combinations of these chemical compounds to rid their fields of insects, weeds, and many fungi. This is bad news for the people who are exposed to these toxic substances.