

# Environmental neurotoxicity: how chemicals affect brain development.

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## Abstract

**Environmental neurotoxicity refers to the negative impact of environmental chemicals on brain development. Chemicals present in the environment, such as lead, mercury and pesticides, have been shown to affect brain development in foetuses, infants and young children. The developing brain is particularly vulnerable to the toxic effects of these chemicals, which can lead to a range of neurological and behavioural problems later in life.**

**Keywords:** Environmental neurotoxicity, Chemicals, Neurotoxicant, Thermometers.

## Introduction

One of the most well-known environmental neurotoxicants is lead. Exposure to lead during early childhood has been shown to cause developmental delays, cognitive deficits and behavioural problems. Lead can enter the body through various sources, including contaminated air, water, soil and household items such as old paint and ceramic cookware. Lead exposure can occur through ingestion, inhalation and skin contact. Mercury is another environmental neurotoxicant that can have harmful effects on brain development. Exposure to mercury during pregnancy can result in developmental delays, cognitive deficits and neurological problems in the foetus. Fish consumption is the primary source of mercury exposure for humans. However, other sources of mercury include dental fillings, thermometers and fluorescent light bulbs [1].

Pesticides are chemicals used to control pests, including insects, weeds and rodents. They are commonly used in agriculture, but can also be found in household products such as insect repellents, flea collars and lawn care products. Exposure to pesticides during pregnancy and early childhood has been linked to developmental delays, cognitive deficits and behavioural problems. The developing brain is particularly vulnerable to the toxic effects of environmental chemicals because it is still growing and forming connections between neurons. Exposure to neurotoxicant can interfere with this process, causing permanent damage to the developing brain. The effects of environmental neurotoxicity can range from subtle changes in behaviour and cognition to severe neurological disorders [2]. In recent years, research has focused on the role of epigenetics in the effects of environmental neurotoxicity. Epigenetics refers to changes in gene expression that are not caused by changes in the DNA sequence itself. Environmental chemicals can alter gene expression through epigenetic mechanisms, which can lead to long-lasting effects on brain development. The effects of environmental neurotoxicity on brain development can have

lifelong consequences. Children exposed to neurotoxicant may experience developmental delays, cognitive deficits and behavioural problems that can affect their ability to learn, socialize and function in society. Some of the long-term effects of environmental neurotoxicity include learning disabilities, attention deficit hyperactivity disorder (ADHD), autism spectrum disorders and schizophrenia [3, 4].

Preventing exposure to environmental neurotoxicant is crucial for protecting brain development in foetuses, infants and young children. Strategies for reducing exposure to neurotoxicant include:

**Identifying and eliminating sources of exposure:** This includes identifying sources of lead and other toxic chemicals in the home, workplace and environment and taking steps to remove or minimize exposure.

**Eating a healthy diet:** Consuming a diet that is low in mercury and other environmental contaminants can help reduce exposure to neurotoxicant.

**Using safe household products:** Choosing household products that are free of neurotoxicant can help reduce exposure.

**Avoiding certain fish species:** Fish that are high in mercury, such as shark, swordfish and king mackerel, should be avoided. Taking precautions in the workplace: Workers who are exposed to neurotoxicant in the workplace should take precautions, such as wearing protective clothing and equipment, to reduce their exposure [5].

## Conclusion

In conclusion, environmental neurotoxicity is a serious public health concern that can have lifelong consequences for brain development. Exposure to environmental neurotoxicant during pregnancy and early childhood can cause developmental delays, cognitive deficits and behavioural problems.

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