



# NEUROLOGICAL DISEASES AND DISORDERS AND CLIMATE CHANGE

Summary produced by the Blackfeet Environmental Office  
in cooperation with the Center for Large Landscape Conservation

For more information visit [blackfeetclimatechange.com](http://blackfeetclimatechange.com)

Diseases that affect brain function are increasing in the United States, including learning disabilities in children, while Alzheimer's Disease and Parkinson's Disease are occurring earlier in adults. Biotoxin, pesticide, herbicide, and heavy metal exposure are all linked to neurological diseases and disorders, as are other factors like aging and genetics. Climate change could impact neurological conditions by increasing exposure to hazardous substances in our air, water, and food. Climate change may also impact neurological conditions by increasing malnutrition and stress.



*Pesticides and herbicides have been linked to neurological diseases and disorders. Climate change may require farmers to increase the use of these chemicals to keep yields stable.*

Climate change is increasing the frequency, intensity, and duration of harmful algal blooms that produce neurotoxins. Human exposure occurs when people ingest contaminated marine fish, shellfish, or freshwater fish. Sometimes drinking water can contain algal toxins as well.

Extreme weather events and changes in agricultural practices (for example, increasing the use of pesticides) in responses to climate change are expected to increase exposure to heavy metals, pesticides, and herbicides. Fetal and early-life exposure to these substances can be especially harmful.

Losses and disruptions from extreme weather can cause stress and even post-traumatic stress disorder, impairing neurological function.

## WHO IS MOST AT RISK?

Risk factors vary. Pregnant women and children are particularly vulnerable to low levels of exposure.

## HOW CAN WE ADAPT?

- Increase access to affordable, nutritious food and create multiple sources of healthy food for the community to increase resilience to extreme weather events and a changing climate. Individual and community gardening are examples to provide families almost no-cost organic produce from their own yards or neighborhoods.
- Encourage and employ ranching and farming practices that reduce the amount of pesticides needed to control crop pests, and use practices that prevent transfer of pesticides into freshwater systems. For example, multi-year, multi-crop rotations can increase farm yields and help control pests and weeds without using as much pesticides. Crop rotation can also increase soil health and reduce the need for fertilizers that can feed harmful algal growth in freshwater.
- Improve infrastructure design and integrity to reduce exposure to chemicals.
- Ensure that building approval is given only for places outside of flood-prone areas, so as to reduce risk of dampness and associated chemical exposure.
- Increase and maintain trees in urban areas and green spaces, and improve infrastructure design and integrity to reduce exposure to chemicals.
- Create and maintain walkable communities and neighborhoods to reduce driving and the chemicals released from vehicles.



*Organic agriculture uses no conventional pesticides or herbicides.*

*Photo courtesy of J. Pecora Photography.*

---

For more information, visit the Blackfeet Country and Climate Change website:

[blackfeetclimatechange.com](http://blackfeetclimatechange.com)

Content on this page is summarized from the U.S. Global Change Research Program's report, "The Impacts of Climate Change on Human Health in the United States", the National Institute of Environmental Health Sciences' "A Human Health Perspective on Climate Change", and the Centers for Disease Control and Prevention's "When Every Drop Counts" to briefly describe some of the possible health outcomes that are most relevant to Blackfeet Country. This page does not include all possible health impacts and outcomes, nor does it include all possible risks and responses. It is important to keep in mind that our decisions and actions can influence the degree to which our community will experience these impacts to our health. Being proactive and making decisions now to safeguard health will help us be more resilient. (December, 2017)