

CCEH

CENTER FOR CHILDREN'S
ENVIRONMENTAL HEALTH

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UNIVERSITY OF CALIFORNIA, DAVIS

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The Center for Children's Environmental Health and Disease Prevention is a multi-disciplinary collaborative research organization established to examine how toxic chemicals may influence the development of autism in children. The Center's goal is to contribute knowledge about autism that will lead to new strategies for the prevention and treatment of this mysterious condition.

Autism is a neurodevelopmental disorder that typically affects a person's ability to communicate, form relationships with others, and respond appropriately to their environment. Autistic children are limited in their social interactions, often locking into repetitive behaviors and rigid patterns of thinking.

Parents and health professionals have raised concerns about how environmental factors may effect the development of the disorder. We are the first center to examine the roles of a wide range of toxic chemicals, genetic predisposition, and the interplay between these two in altering brain development during early life and leading to abnormal social behavior in children. Center researchers are investigating how pesticides, polychlorinated biphenyls (PCB's) and other industrial products, mercury compounds (including those used in some vaccines), and other toxic chemicals may influence genetic susceptibility for expressing autism.

collaborative
research

The Center supports and coordinates the efforts of major projects in epidemiology, social behavior, and molecular and cellular biology:

- ❖ The CHARGE Study (Childhood Autism Risks from Genetics and the Environment) is a case-control study of 2,000 children with differing patterns of development. These include children with autism, children with developmental delay or mental retardation but not autism, and typically developing children. Subject groups will be compared with regard to a broad array of exposures and physiologic factors. Autism cases will also be characterized into more homogeneous subgroups to determine whether particular genes or environmental exposures are associated with certain subtypes of this condition.
- ❖ Animal models are being developed and utilized to determine how early postnatal or perinatal exposure to known immunotoxicants and neurotoxicants in the presence and absence of immune challenge influences normal development of social behavior. Although neurotoxicants such as organic mercury and PCBs have been shown to alter cognitive functions in exposed human populations and animal models, virtually nothing is known about their impact on the development of social behavior.
- ❖ Laboratory team members will measure toxic compounds present in the blood of autistic and non-autistic children and investigate how chemicals affect the developing immune and nervous systems.

