

Children's Health Study

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Children may be more strongly affected by air pollution because their lungs and their bodies are still developing. Children are also more exposed to air pollution than adults are because they breathe faster and spend more time outdoors in strenuous activities.

The Children's Health Study, which began in 1992, is a very large, long-term study of the health effects of southern California children's chronic exposures to ozone, nitrogen dioxide, very small particles, and acid vapor. About 5500 children in twelve communities have been enrolled in the study. Monitoring stations in the twelve communities measure the children's exposures to these four pollutants and many others not commonly monitored in epidemiological studies. The world's first network of ultrafine particle monitors is now operating in the communities. Each child's lung function is tested every spring. Annual questionnaires ask about the children's respiratory symptoms and diseases, level of physical activity, time spent outdoors, and many other factors influencing their responses to air pollution.

The Children's Health Study has discovered many important health effects, including:

- Children living in high ozone communities who actively participate in several sports are more likely to develop asthma than children in these communities not participating in sports.
- Children living in communities with higher concentrations of nitrogen dioxide, particulate matter, and acid vapor have lungs that develop and grow more slowly and are less able to move air through them. These decreases in lung development may have permanent adverse effects in adulthood.
- Children who moved away from study communities had increased lung development if the new communities had lower particulate pollution, and had decreased lung development if the new communities had higher particulate pollution.
- Significantly more children were absent from school with respiratory illnesses after days with higher ozone concentrations.

The ARB sets California's ambient air quality standards to protect people who are the most sensitive to air pollution, including children. The information provided by the Children's Health Study will help the Air Resources Board (ARB) protect children's health.