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Air pollution episodes especially harmful to athletes, outdoor workers
Health effects include respiratory problems, DNA damage

SACRAMENTO - Staff presented research today to the California Air Resources Board that links air pollution episodes to adverse health effects for athletes and those who must work outdoors.

Scientists have found that outdoor exercise during high levels of smog or particulate matter may cause otherwise healthy individuals to experience lung function decrease, exacerbation of asthma, and even DNA damage. For those with pre-existing respiratory or heart ailments, the danger is even greater.

"This report once again shows that an active person's zeal for fitness may sometimes do more harm than good when air quality is suffering," said ARB Chairman Mary Nichols. "People should be aware of air quality in their region and take precautions to protect their health when pollution spikes occur. For example, we are surprised and alarmed to find many people out exercising during the recent rash of wildfires that have blanketed much of the state in smoke."

The findings from the studies include:

- A three-fold decrease in lung function after walking near diesel traffic compared to walking in a park with no traffic;
- A four-fold increase in DNA damage after cycling in traffic;
- A 10 percent reduction in lung function after cycling with ozone exposure;
- Delivery of oxygen to the heart may drop by three times when exercising while exposed to diesel exhaust; and,
- A three-fold increase in asthma development for children who played multiple sports in high ozone areas.

Research shows that during exercise, people breathe faster; a greater proportion of air is inhaled through the mouth, bypassing nasal filtration, and pollutants are carried more deeply into the lungs. And, greater volumes of air are exchanged during exercise -- up to 10 or 20 times more air compared to when at rest.

As breathing rates increase so does the quantity of pollutants inhaled. Anyone exercising outdoors during times of high pollution should remember they will receive a greater dose of pollutants. Additionally, research studies found that people who exercise near roadways such as joggers, cyclists and pedestrians experience increased risk because not only are they exposed to outdoor air pollution but traffic-related pollution as well.

For people who already have compromised lung function or heart disease, these risks are amplified.

It is well established that exercise promotes health and fitness. Regular exercise can help counteract the negative effects of air pollution. For example, regular activity may improve removal of inhaled particles from the lungs and can strengthen immune defenses. Prior to exercise outdoors, people can protect themselves by heeding air quality advisories, available in local newspapers, television weather reports, and through local health agencies, air districts and U.S. Environmental Protection Agency websites, including www.airnow.gov .

The Air Resources Board is a department of the California Environmental Protection Agency. ARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy. The ARB oversees all air pollution control efforts in California to attain and maintain health based air quality standards.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy cost, see our web site at <http://www.arb.ca.gov>

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