

Beijing pollution may trigger heart attacks, strokes

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Olympic athletes aren't the only ones who need to be concerned about the heavily polluted air in Beijing. The dirty air may trigger serious cardiovascular problems for some spectators.

Two researchers in pulmonary medicine and critical care at Northwestern University's Feinberg School of Medicine warn that for people in certain risk groups, breathing high levels of pollution can cause heart attacks and strokes within 24 hours of exposure and increase the possibility of having blood clots in their legs on the plane home.

The people who are vulnerable include those who already have known cardiovascular disease or risk factors for cardiovascular disease such as high blood pressure, high cholesterol, diabetes, obesity, lung disease, a current smoking habit or a family member diagnosed with heart disease before age 55.

"If the air quality is bad, you are more likely to have serious heart disease related events," said Gokhan Mutlu, MD, assistant professor of medicine at the Northwestern's Feinberg School and a physician at Northwestern Memorial Hospital. "Being exposed to higher levels of pollution may unmask heart disease even if you've never had any symptoms."

WHY POLLUTION CAUSES HEART ATTACKS, STROKES AND BLOOD CLOTS

Mutlu published research in 2007 that showed how pollution triggers heart attacks and strokes. He discovered that microscopic air pollution -- particles less than one-tenth of the diameter of a human hair -- makes the blood thicker and sticky. He found when lungs are inflamed by pollution, they secrete a substance, interleukin-6, which causes an increased tendency for blood to clot.

Previous studies have shown that thousands of people in the U.S. die from strokes and heart attacks within 24 hours of a spike in microscopic pollution from the exhaust of diesel trucks, buses and coal-burning factories.

A more recent study has shown that people who live in polluted areas are more likely to have blood clots in their legs. Traveling long distances by car or plane is known to put people at risk for these clots.

"If you spend a few weeks in Beijing, your blood might become thicker and sticky and then when you fly 12 hours back to the U.S. that further increases your risk. If clots migrate into the lungs and cause pulmonary embolism, that can kill you," Mutlu warned.

HOW TO PROTECT YOURSELF AT OLYMPICS

Scott Budinger, M.D., an associate professor of medicine at Northwestern's Feinberg School and a physician at Northwestern Memorial Hospital, offered several ways for people to lower their risk at the Olympics.

1. Men over 40 should take an aspirin each day to prevent their blood from becoming thick and sticky. While the benefits of aspirin are less certain for women, he said it probably wouldn't hurt for them to take one, too.

2. Stay indoors during traffic rush-hour periods. "Indoor air pollution levels are always much lower than outdoor, so staying inside will limit your exposure," Budinger said. He cautioned that Beijing's definition of mild pollution would be a pollution alert day in the U.S.

3. On the plane, especially the return flight, frequently walk up and down the aisles and do leg exercises in your seat to prevent blood from pooling in the legs and clots from forming.

Source: Northwestern University

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