For Cleaner, Fresher and Healthier Air to Breathe.

Air Pollution - What It Means for Your Health.

A. How might air pollution affect me?

Exposure to pollutants such as particulate matter and ozone have been found to be associated with increases in hospital admissions for cardiovascular and respiratory disease and mortality in many cities in Europe and other continents.

Pollutants can be:

- "inhalable particles", which pass into the upper airways (nose and mouth),
- "thoracic particles", which deposit within the lower respiratory tract, and
- "respirable particles", which penetrate to the gas-exchange region of the lungs.

1. What are the health effects of particulate air pollution?

More than two dozen community health studies since 1987 have linked particulate pollution to reductions in lung function, increased hospital and emergency room admissions, and premature deaths. Recently, two major epidemiological studies (by the American Cancer Society and Harvard University) were published that showed that people living in more polluted cities had an increased risk of premature death compared to those in cleaner cities.

2. Who is at greatest risk?

The elderly and those with heart and lung disease are at greatest risk of premature mortality due to particulate air pollution. Their lives might be shortened by one to two years on average in more polluted areas.

3. How do particles cause harm to human health?

Studies show that particulate matter causes respiratory symptoms, changes in lung function, alteration of mucociliary clearance, and pulmonary inflammation which can lead to increased permeability of the lungs. Increased permeability might precipitate fluid in the lungs in people with heart disease. In addition, mediators released during an inflammatory response could increase the risk of blood clot formation and strokes.

Particulate exposure might also increase susceptibility to bacterial or viral respiratory infections, leading to an increased incidence of pneumonia. In the presence of pre-existing heart disease, acute bronchiolitis or pneumonia induced by air pollutants might precipitate congestive heart failure.

4. What exactly is particulate matter?

Particulate matter includes a wide range of pollutants -- road dust, diesel soot, fly ash, wood smoke, and sulphate aerosols that are suspended as particles in the air. These particles are a mixture of visible and microscopic solid particles and minute liquid droplets known as

aerosols.

5. What level of exposure to particulates is considered unhealthy - Is there a threshold?

The long-term epidemiology studies show that the risk of premature deaths starts to increase at annual average concentrations of PM2.5 of 10 g/m3, according to the World Health Organization.

6. What can individuals do to help reduce particulate pollution?

People cannot choose the air they breathe, but they can choose cleaner and more efficient energy sources for home heating and cooling, transportation, and appliances. Carpooling, recycling, maintaining automobiles, and insulating homes can make a big difference. Perhaps the most significant action an individual can take is to limit the use of fireplaces and wood burning stoves.

7. Has a cause-and-effect relationship been demonstrated?

A number of prestigious international panels including a British Committee on the Medical Effects of Air Pollutants and a Committee of the Health Council of Netherlands have concluded that there is a cause-and-effect relationship between particulate pollution and mortality.

B. What substances can hurt your lungs?

Dusts from wood, cotton, coal, asbestos, silica and talc. Dust from cereal grains, coffee, pesticides, drug or enzyme powders, metals and fibreglass can also hurt your lungs.

Fumes from metals that are heated and cooled quickly. This process results in fine, solid particles being carried in the air. Sources are welding, smelting, furnace work, pottery making, plastics manufacture and rubber operations.

Smoke from burning organic materials. Smoke can contain a variety of dusts, gases and vapours.

Gases such as formaldehyde, ammonia, chlorine, sulphur dioxide, ozone and nitrogen oxides. These gases can be found where chemical reactions occur and in high heat operations, such as welding, brazing, smelting, oven drying and furnace work.

Vapours, which are a form of gas given off by all liquids, such as solvents, usually irritate the nose and throat first, before they affect the lungs.

Mists or sprays from paints, lacquers (for example, varnishes), hair spray, pesticides, cleaning products, acids, oils and solvents (such as turpentine).

Pollutant	**Health effects at very high levels**
Nitrogen dioxide **Sulphur dioxide** **Ozone**	These gases irritate the airways of the lungs, increasing the symptoms of those suffering from lung diseases.
Particles	Fine particles can be carried deep into the lungs where they can cause inflammation and a worsening of heart and lung diseases.

Carbon monoxide	This gas prevents the normal transport of oxygen by the blood. This can lead to a significant reduction in the supply of oxygen to the heart, particularly in people suffering from heart disease.

C. What kinds of breathing problems can occur following exposure to such substances?

Some substances can cause you to have upper respiratory irritation or irritation of your nose and/or throat and cold-like symptoms, such as a runny nose and scratchy throat.

Viral infections and allergies produce similar symptoms. You should become suspicious of an illness if your nose and throat are often irritated and breathing problems seem to occur. Breathing in substances can also cause you to have bronchitis, flu-like symptoms, asthma or emphysema. Asthma symptoms include wheezing, chest tightness, a persistent dry cough or trouble breathing.

A person with bronchitis has a persistent cough that produces mucus or sputum and lasts at least 3 months to a year. Cigarette smoking is the most common cause of bronchitis, but toxins can also play a role.

If you notice that you often have what seems to be the flu, your illness may be caused by something you are exposed to on a regular basis

A person with one of these conditions develops breathing problems, cough, fever, muscle aches and general malaise (a feeling of being tired and having no energy) 4 to 6 hours after exposure to the substance. If such symptoms occur again and again, this pattern is a clue that your illness may be related to the air you are breathing.

D. Partnership for Clean Indoor Air (PCIA).

The Partnership for Clean Indoor Air was launched at the World Summit on Sustainable Development in Johannesburg in 2004 to address the increased environmental health risk faced by more than 2 billion people in the developing world who burn traditional biomass fuels indoors for cooking and heating. According to the World Health Organization, their increased exposure results in an estimated 1.6 million premature deaths each year, largely among women and children. The mission of the Partnership is to improve health, livelihood, and quality of life by reducing exposure to air pollution, primarily among women and children, from household energy use.

The **Fabulous Aire™ Revitaliser** will go a long way to remove pollutants from biomass fuels indoors, thereby improving the health of those exposed.

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