

INFORMATION LEAFLET:

PATIENTS WITH CARDIOVASCULAR DISEASE

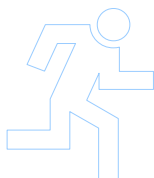
# AIR POLLUTION AND HEALTH

*New findings from the EU-wide research project 'European Study of Cohorts for Air Pollution Effects' (ESCAPE) make raising awareness of the effects on health of exposure to air pollution even more urgent. This leaflet developed by the ESCAPE project in collaboration with the Health and Environment Alliance (HEAL) explains the latest news on the links between outdoor air pollution and cardiovascular disease. It also provides prevention tips for patients to achieve a healthier future.*



**HEAL**

Promoting environmental policy  
that contributes to good health



## WHAT DOES THE LATEST RESEARCH SHOW?

The EU-wide ESCAPE project found that increased exposure to fine particles in the outdoor air was related to an increase in the number of people developing ischemic heart disease and having a stroke. It appeared that undiagnosed inflammation in the lungs, often associated with exposure to polluted air, was one of the contributing factors.

Although no consistent relationships were found between exposure to air pollution and blood pressure or undiagnosed atherosclerosis (calcification of coronary arteries), this does not mean that air pollution is definitely not a risk factor in these conditions.

## HOW DOES AIR POLLUTION AFFECT MY CONDITION?



Cardiovascular diseases (CVDs) affect the heart and surrounding blood vessels. They can take many forms, including high blood pressure, coronary artery disease, heart disease and strokes. CVDs are the biggest cause of the deaths in the EU representing 40% of deaths each year.

Even though exposure to dirty air may cause only an irritation of the nose, eyes or throat or the worsening of a breathing problem in the short term, chronic inflammation in the lungs can affect the heart in the longer term. Immediately occurring changes in heart rate, heart rate variability, changes in blood clotting and vessel tone are taking place largely unnoticed. The irritation in the lungs appears to prompt these reactions in the cardiovascular system that may explain why a range of cardiovascular ailments are associated with exposure to polluted outdoor air.



The strongest associations of effects on cardiovascular health exist for particulate matter. On days with increased particulate matter concentrations in the air, studies have shown an increase in the use of cardiovascular medications, a higher number of emergency visits and hospital admissions for cardiac problems and even increased death rates. In the long term, exposure to particulate matter increases the risk for developing a variety of cardiovascular diseases including ischemic heart disease, arrhythmia and heart insufficiency.

## WHAT ARE THE LONG-TERM EFFECTS?



Air quality in European countries is far better than it was fifty years ago but more people are now exposed to air pollution in cities. Research over the past 10 years has shown that long-term exposure to even low to moderate levels of pollution is a risk factor for heart disease, asthma and other lung diseases.

Current air quality research is intensive in the area of cardiovascular disease. The nearer people live to a main road, the greater their risk appears to be of having a coronary heart attack. Air pollution stimulates the calcification of coronary arteries, an underlying condition determining the risks of coronary artery disease.

## What causes air pollution?

Air pollution comes from city traffic, coal and other industrial power plants, ships and from agricultural production, but also from natural sources such as wildfires. Pollutants in the air are often invisible, but they can have serious effects on our health. Climate change also has an effect: Warmer summers mean longer pollen seasons and heat waves create peak levels of pollution. In addition, it appears that the allergic potential of pollen increases when linked to air pollutants.

## Who is most affected?

It is not easy to predict who will be most affected. However, children, older people and those with pre-existing conditions, including asthma, COPD and heart disease are at greater risk. Genetic factors, infections and nutrition also play a role.



## TIPS ON REDUCING YOUR EXPOSURE



Checking the daily air quality forecasts for your city or town (e.g. <http://watch.eyearth.org/>). Use this information to plan your activities.



Avoiding outdoor activities near busy roads especially during rush hour. When walking or jogging or other sport consider alternative routes with lower levels of pollution.



When pollution levels are high, for example in summer because of ozone, avoiding energetic outdoor activities or doing them in the morning or late in the evening and keep windows closed.



Take preventive measures for improving your heart condition, i.e. regular medication intake, diet high in antioxidants, regular physical activity.

## KEEP INDOOR AIR HEALTHY

Most children and adults are indoors most of the time. The air quality outdoors is a key determinant of the air we breathe indoors too. **Indoor air can be improved by ensuring that:**

- There is no smoking indoors
- Rooms are regularly aired during times of low pollution and cleaned to remove dust and mould, and
- Air freshener sprays are avoided and chemical cleaning products are only used where necessary.

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## JOIN A SUPPORT GROUP



Patient organisations have good practical tips for you.

Find your local patient group

→ <http://www.european-lung-foundation.org/16505-patient-organisations.htm>

→ <http://www.ehnheart.org>

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## WHAT CAN I DO TO REDUCE POLLUTION LEVELS?



Everyone can contribute to cleaner air and improve their overall health by:

- Reducing car use and walking and cycling more – but try to walk and cycle away from busy roads
- Switching to clean energy: support renewable energy schemes and avoid wood burning in your house, or open fires, as these contribute to bad air.

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**All these initiatives also help tackle climate change as they help lower carbon emissions.**

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**ESCAPE** - European Study of Cohorts for Air Pollution Effects – investigated the long-term effects of air pollution on a broad range of chronic conditions – asthma, allergies in children; adult respiratory and cardiovascular disease; cancer – and life expectancy.

Funded by the EU, the project brought together over 20 leading research groups on air pollution and health from 15 countries to analyse over 30 cohort studies including some 900,000 subjects. Cohort studies follow a population over time and ESCAPE focused on how different levels of exposure to air pollution affected people's health.



This programme is implemented with the support of the European Union. The contents of this publication are the sole responsibility of HEAL and can in no way be taken to reflect the views of the European Union.

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# ACT!

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## Ask authorities to act

Everyone has a right to clean air. Yet, most Europeans breathe air that is much dirtier than the standards recommended by the World Health Organization (WHO). Contact your local, national and European decision-makers and ask them to strengthen European Union (EU) air quality standards and measures to reduce air pollution at the source.

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## More information

ESCAPE:

[www.escapeproject.eu](http://www.escapeproject.eu)

Health and Environment Alliance (HEAL):

[www.env-health.org](http://www.env-health.org)

European Respiratory Society (ERS): Air quality and health, [www.ersnet.org/images/stories/pdf/web-AQ2010-ENG.pdf](http://www.ersnet.org/images/stories/pdf/web-AQ2010-ENG.pdf)

European Lung Foundation, Health effects of outdoor air pollution, <http://www.european-lung-foundation.org/16539-health-effects-of-outdoor-air-pollution.htm#par38083>

European Respiratory Society (ERS): 10 principles for clean air <http://www.ersnet.org/images/stories/DOC/ERS10CleanAirPrinciples.pdf>