

FOLLOWING the smoking ban, advocates of clean air might have believed that the battle was largely won. However, worrying new research highlights the pernicious effects of other life-threatening pollutants. Most worrying is the fact that these are pollutants that occur inside the home.

A Danish study of non-smokers aged between 60 and 75 found that the use of an air filter in the home for only 48 hours improved vascular function in the participants as much as stopping smoking would do in a smoker. When the high-efficiency particle air (HEPA) filters were used to clean the air in the apartments of 21 older couples, their bloodvessel function improved by about 8per cent.

The improvement was described as being "in the same ballpark" as that which would be seen after a person quits smoking, according to lead author of the study, Dr Steffen Loft, of the Institute of Public Health in Copenhagen.

In an article published in the American Journal of Respiratory and Critical Care Medicine, Loft refers to a wealth of data on how breathing minute particles carried in the air, known as particulate matter, can worsen heart and lung disease and even increase mortality rates.

To better understand how particulate matter in indoor air affects health, Loft and his team carried out a series of tests to assess microvascular function in 21 couples after breathing nonfiltered air, and then after breathing filtered air for 48 hours.

Microvascular function looks at how well the tiny blood vessels linking veins and arteries work in response to blood and oxygen demands. Impairment of this function is a sign of coronary heart disease. On average, microvascular function improved by 8.1per cent for the study's participants after only two days of breathing filtered air.

"It may be speculated that further improvement may occur after prolonged intervention of six months to one year, and that this could result in further reduction in cardiovascular risk in this healthy, elderly age group, " the research team concludes.

"Air pollution, both indoor and out, is certainly affecting people's hearts, " added Loft, whose next project is to investigate how particulate matter from wood stoves used to heat homes in Scandinavia and parts of the United States can affect health.

Back in 2005, Dr Stirling Howieson, author of Housing and Asthma, was flagging up the dangers of pollution inside modern homes. He laid the blame for Scotland's high incidence of asthma firmly at the feet of the construction establishment. "Since the 1975 Opec oil crisis, housebuilders have been hell-bent on turning our homes into sealed boxes, " he told The Herald. "Heat and energy might not escape from them, but neither can the wealth of toxins and dust mites responsible for the escalating numbers of asthma sufferers, " he said.

"The facts are beyond dispute, yet succeeding generations of architects have continued to ignore them despite the consequences of their inaction. The focus of most people's attentions might be upon pollution outside the home, but the reality is that unless your house is on the busiest street in the city centre, the air inside it is by far the more dirty and dangerous."

Following an evaluation programme in Lanarkshire of small architectural modifications that could improve air quality, Howieson called for the compulsory introduction of simple ventilation systems in new homes. During his experiment, 80per cent of asthma sufferers

reported improvements in the condition.

According to the Danish study, indoor air pollution typically comes from heating sources, candles, cooking and nearby traffic. For people living close to busy roads, seeping traffic pollution is of particular concern. A 2002 study, funded by the National Asthma Campaign, showed how the proximity to a major road increased the risk of children developing wheezing, a symptom of asthma, by 8per cent among primary-school age children and 16per cent for older children.

Last weekAsthma UK, the charity which represents the 5.2million UK sufferers, urged all vehicle drivers to take further measures to improve air quality in cities across the UK, following the introduction of the new Low Emission Zone in London.

The charity reports that two thirds of people with asthma say that fumes from traffic aggravate their condition. Asthma UK also cites mounting evidence to suggest that living near a major road is associated with worsening asthma symptoms.

Sally Rose, a specialist nurse with Asthma UK, said: "For many people with asthma, changes in air quality, such as increased pollution levels, can bring with it a whole host of problems. It may be helpful to keep a regular check on air quality levels in the local area, so it is possible to make changes to plans for the following day if pollution levels will be high."

Those who want to filter the air in their own home can choose to invest in a permanent installation or opt for a portable version. People who live in wet climates are advised to get a system that destroys mould spores and those with children can opt for one that kills bacteria. Allergy sufferers will benefit most from a device specifically designed to destroy pet dander, pollen and dust mites. Proponents of ventilation systems say they can be installed for less than GBP2000.