

# Diesel fumes pose risk to heart as well as lungs, study shows

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Tiny chemical particles emitted by diesel exhaust fumes could raise the risk of heart attacks, research has shown.

Scientists have found that [ultrafine particles](#) produced when diesel burns are harmful to blood vessels and can increase the chances of [blood clots](#) forming in [arteries](#), leading to a [heart attack](#) or [stroke](#).

The research by the University of Edinburgh measured the impact of diesel exhaust fumes on healthy volunteers at levels that would be found in heavily polluted cities.

Scientists compared how people reacted to the [gases](#) found in diesel fumes – such as carbon monoxide and nitrogen dioxide – with those caused by the ultrafine chemical particles from exhausts.

The research, funded by the British Heart Foundation, showed that the tiny particles, and not the gases, impaired the function of blood vessels that control how blood is channelled to the body's organs.

The 'invisible' particles – less than a millionth of a metre wide – can be filtered out of exhaust emissions by fitting special particle traps to vehicles. Particle traps are already being fitted retrospectively to public transport vehicles in the US to minimise the potential effects of pollution.

The results are published in the *European Heart Journal*.

Dr Mark Miller, of the University of Edinburgh's Centre for Cardiovascular Science, said: "While many people tend to think of the effects of air pollution in terms of damage to the lungs, there is strong evidence that it has an impact on the heart and blood vessels as well.

"Our research shows that while both gases and particles can affect our blood pressure, it is actually the miniscule chemical particles that are emitted by car exhausts that are really harmful.

"These particles produce highly reactive molecules called free radicals that can injure our [blood vessels](#) and lead to vascular disease

"We are now investigating which of the chemicals carried by these particles cause these harmful actions, so that in the future we can try and remove these chemicals, and prevent the health effects of vehicle emissions"

Researchers want environmental health measures that are designed to reduce emissions to be tested to determine whether they reduce the incidence of heart attacks.

Professor Jeremy Pearson, Associate Medical Director at the British Heart Foundation, said: "We've known for a long time that air pollution is a major heart health issue and that's why we're funding this team in Edinburgh to continue their vital research. Their findings suggest that lives could be saved by cutting these harmful nanoparticles out of exhaust - perhaps by taking them out of the fuel, or making manufacturers add gadgets to their vehicles that can trap particles before they escape. The best approach isn't clear yet.

"For now our advice remains the same - people with [heart](#) disease should avoid spending long periods outside in areas where traffic pollution is likely to be high, such as on or near busy roads."

Provided by University of Edinburgh

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