**Diesel particles pose heart risks**

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

University scientists have found that ultrafine particles produced when diesel burns are harmful to blood vessels.

They can increase the chances of blood clots forming in arteries, leading to a heart attack or stroke.

**Diesel exhaust fumes**

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

Scientists studied people’s reactions to the gases found in diesel fumes, such as carbon monoxide and nitrogen dioxide.

They then compared those with reactions caused by the ultrafine chemical particles from exhausts.

**Tiny particles**

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.

**Dr Mark Miller**

***Centre for Cardiovascular Science***

The research, funded by the British Heart Foundation, showed that the tiny particles, and not the gases, impaired the function of blood vessels in the body.

These blood vessels are critical in controlling how blood is channelled to the body’s organs.

Researchers are now investigating which of the chemicals carried by these particles cause these harmful actions.

**Particle traps**

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.

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.

**Dr Mark Miller**

***Centre for Cardiovascular Science***

**Environmental health measures**

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

The results of the study are published in the European Heart Journal.

These 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.

**Professor Jeremy Pearson**

***Associate Medical Director at the British Heart Foundation***

**Related links**

* [University/BHF Centre for Cardiovascular Science](http://www.cvs.med.ed.ac.uk/)
* [Medicine - undergraduate study](http://www.ed.ac.uk/studying/undergraduate/degrees?meta=4&cw_xml=index.php)
* [Medicine - postgraduate study](http://www.ed.ac.uk/studying/postgraduate/finder/subjectarea.php?sid=40)
* [British Heart Foundation](http://www.bhf.org.uk/)
* [European Heart Journal](http://eurheartj.oxfordjournals.org/)