

Scientists quantify nanofiber health risk to workers

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Health risks posed to people who work with tiny fibres used in manufacturing industries could be reduced, thanks to new research.

Research into the [health risks](#) posed by nanofibres – used to strengthen objects from tennis rackets to airplane wings – has pinpointed the lengths at which these [fibres](#) are harmful to the lungs.

Nanofibres, which can be made from a range of materials including carbon, are about 1,000 times smaller than the width of a human hair and can reach the lung cavity when inhaled.

This may lead to a cancer known as mesothelioma, which is known to be caused by breathing in asbestos fibres, which are similar to nanofibres.

The study by the University of Edinburgh found that lung cells were not affected by short fibres that were less than five-thousandths of a millimetre long.

However, longer fibres can reach the [lung](#) cavity, where they become stuck and cause disease.

Ken Donaldson, Professor of Respiratory Toxicology at the University of Edinburgh, said: "Concern has been expressed that new kinds of nanofibres being made by nanotechnology industries might pose a risk because they have a similar shape to asbestos.

"We knew that long fibres, compared with shorter fibres, could cause tumours but until now we did not know the cut-off length at which this happened. Knowing the length beyond which the tiny fibres can cause disease is important in ensuring that safe fibres are made in the future as well as helping to understand the current risk from asbestos and other fibres."

The researchers, whose study is published in the journal *Toxicology Sciences*, created fibres of different lengths using minute silver casts. They then looked at the effect of these fibres on mouse cells to reach their findings.

Provided by University of Edinburgh

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