

Vaping study shows e-cigarettes more harmful than thought

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Vapour from e-cigarettes could harm lung cells and the effects could be similar to those seen in cigarette smokers, according to a new study.

E-cigarettes are devices that heat a cartridge of liquid nicotine into a vapor. It is widely agreed they are likely to be less harmful than smoking cigarettes and are often used as an aid to quit smoking.

Research led by the University of Birmingham and published in the journal Thorax shows that vaporised e-liquid disables key protective cells in the lungs.

These protective cells, called alveolar macrophages, engulf and remove dust, bacteria, and allergens that have entered the lungs.

This does not mean e-cigarettes are as dangerous as cigarettes, but it suggests e-cigarettes may be more harmful than we think.

Co-author Professor David Thickett said further studies were needed.

"It has been suggested electronic cigarettes are safer than traditional cigarettes, and this narrative is increasingly supported by tobacco companies that have established research institutes devoted to generating supportive data," he said.

"E-cigarette users have been given advice based on relatively little information.

"We hope that by disseminating this data as widely as possible the public can at least make an informed choice; the public must be aware these devices are not harmless."

Vaping could damage vital immune system cells: Researchers

In the study, researchers extracted alveolar macrophage cells from lung tissue. They exposed a third of these to plain e-cigarette fluid, a third to different strengths of the artificially vaped condensate with and without nicotine, and a third were exposed to nothing for 24 hours.

The results showed that the condensate was significantly more harmful to the cells than e-cigarette fluid and that these effects worsened as the 'dose' increased.

Exposure to the condensate increased cell death and boosted production of oxygen free radicals 50-fold and significantly increased the production of inflammatory chemicals.

The commercial supply of nicotine for use in e-cigarettes remained prohibited in Australia under state and territory legislation.

In October last year, Health Minister Greg Hunt said he would never lift the ban on e-cigarettes despite an ongoing Senate inquiry into their use.

In March this year, that inquiry recommended the National Health and Medical Council fund an independent review of the available evidence of the health impacts of vaping and e-cigarette liquids, as well as a review of the regulations around the world.

How vaping could lead to lung disease

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E-cigarettes may be more harmful than we think.



How vaping could lead to lung disease. (Photo: Pixabay)

Washington: An experimental study has revealed that e-cigarette vapour boosts the production of inflammatory chemicals and disables key protective cells in the lung that keep the air spaces clear of potentially harmful particles.

The vapor impairs the activity of alveolar macrophages, which engulf and remove dust particles, bacteria, and allergens that have evaded the other mechanical defences of the respiratory tract.

The findings prompted the researchers to suggest that while further research is needed to better understand the long-term health impact of vaping on people, e-cigarettes may be more harmful than we think, as some of the effects were similar to those seen in regular smokers and people with chronic lung disease.

Vaping is increasing in popularity, but most of the current body of research has focused on the chemical composition of e-cigarette liquid before it is vaped.

To find out how vaping might change this chemical soup, and what impact this might have, the researchers devised a mechanical procedure to mimic vaping and produce condensate from the vapour. They extracted alveolar macrophages from lung tissue samples provided by eight non-smokers who had never had asthma or chronic obstructive pulmonary disease (COPD).

A third of the cells were exposed to plain e-cigarette fluid, a third to different strengths of the artificially vaped condensate with and without nicotine, and a third to nothing for 24 hours.

The results showed that the condensate was significantly more harmful to the cells than e-cigarette fluid and that these effects worsened as the 'dose' increased.


After 24 hours of exposure, the total number of viable cells exposed to the vaped condensate was significantly reduced compared to the untreated cells, and condensate containing nicotine exaggerated this effect.

The researchers conclude that the vaping process itself can damage vital immune system cells, at least under laboratory conditions.

Lead author Professor David Thickett said, "While e-cigarettes are safer than traditional cigarettes, they may still be harmful in the long term, as the current body of research is in its infancy and not able to answer that question yet."

The full findings are present in the journal *Thorax*.

Vaping must only be used 'as last resort'

 [independent.ie/irish-news/health/vaping-must-only-be-used-as-last-resort-37217584.html](https://www.independent.ie/irish-news/health/vaping-must-only-be-used-as-last-resort-37217584.html)



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Ian Begley

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- Vaping must only be used 'as last resort'

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An Irish anti-tobacco group has urged people to start vaping only as a last resort when trying to quit smoking, following a new study on e-cigarettes.

<https://www.independent.ie/irish-news/health/vaping-must-only-be-used-as-last-resort-37217584.html>

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An Irish anti-tobacco group has urged people to start vaping only as a last resort when trying to quit smoking, following a new study on e-cigarettes.

The study, published by the 'British Medical Journal', revealed e-cigarette vapour destroys protective cells which keep the lungs clear of harmful particles. It showed the vapour impairs the activity of cells known as macrophages, which help remove dust, bacteria and allergens.

Some of the damage highlighted is similar to the effects of tobacco and chronic lung disease. The researchers concluded vaping in itself increases the damage caused by the e-cigarette fluid.

Dr Patrick Doorley, chairman of Ash Ireland, said the report added to reservations about the safety of e-cigarettes.

"We certainly shouldn't dismiss this study," he said. "We have known for quite some time about the concerns of vaping. Our health regulator Hiqa conducted a major study in recent years [which] acknowledged that, while e-cigarettes could help people quit smoking, there were still many reservations.

"The single biggest concern we have at the moment is their long-term safety."

Dr Doorley said e-cigarettes should not be the go-to solution when giving up smoking. "There are options that are safer and have a good long-term track record, like the drug varenicline, along with nicotine replacement therapy."

According to a Euromonitor International report, Ireland is the third-biggest spender on e-cigarette products per capita. Those wishing to quit can contact the National Quitline online at www.quit.ie or call 1800 201203.

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Vaping Damages Immune Cells, Researchers Find

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A small, in vitro study concludes that e-cigarette vapor harms macrophages taken from human lung tissue.

The vapor inhaled from e-cigarettes is toxic to immune cells in the lung known as alveolar macrophages, according to an in vitro study published yesterday (August 13) in *Thorax*. Using lung tissue samples from eight nonsmokers, researchers at the University of Birmingham in the UK found that, over a period of 48 hours, the vapor led to the production of reactive oxygen species, the release of inflammatory cytokines, and the inhibition of phagocytosis in the cells—calling the perceived safety of the devices into question.

“I don’t believe e-cigarettes are more harmful than ordinary cigarettes,” study coauthor David Thickett says in a [statement](#). “But we should have a cautious scepticism that they are as safe as we are being led to believe.”

See “Swapping Cigarettes for Vaping”

Previous studies of e-cigarettes’ safety have focused on the liquid used in the devices before it is vaped. This study compared unvaped and vaped e-cigarette fluid and found that the vapor itself triggered some physiological effects in lung cells that were similar to those seen in smokers and lung disease patients, such as an upregulation of proteins related to oxidative stress.

The vaped liquid is “significantly more toxic” to alveolar macrophages than the nonvaped liquid, the researchers conclude in their paper. “While further research is needed to fully understand the effects of e-cigarette exposure in humans in vivo, we caution against the widely held opinion that e-cigarettes are safe.”

Martin Dockrell of the government agency Public Health England tells [BBC News](#) that smokers should not be put off swapping their cigarettes for e-cigarettes as a way to quit smoking. “E-cigarettes are not 100% risk-free, but they are clearly much less harmful than smoking,” he says. “Any smoker considering e-cigarettes should switch completely without delay.”