

# Flights can make aircrew sick, study suggests

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Credit: University of Stirling

Flying a plane should come with a health warning, according to research led by the University of Stirling.

A new study, published in the World Health Organisation journal *Public Health Panorama*, is the first of its kind to look in-depth at the health of aircrew who are suspected to have been exposed to contaminated air during their careers.

## Health impacts

It shows a clear link between being exposed to air supplies contaminated by engine oil and other [aircraft](#) fluids, and a variety of health problems.

Adverse effects in flight are shown to degrade flight safety, with the impact on health ranging from short to long-term.

The scientists confirmed a cohort of more than 200 aircrew had been exposed to a number of substances through aircrafts' contaminated air and reveal a clear pattern of acute and chronic symptoms, ranging from headaches and dizziness to breathing and vision problems.

Dr Susan Michaelis, of the University of Stirling's Occupational and Environmental Health Research group, said: "This research provides very significant findings relevant to all aircraft workers and passengers globally.

"There is a clear cause-and-effect relationship linking health effects to a design feature that allows the aircraft air supply to become contaminated by engine oils and other fluids in normal flight. This is a clear occupational and public health issue with direct flight-safety consequences."

The experts conducted two independent surveys to review the circumstances and symptoms of aircrew working in the pressurised air environment of aircraft. The symptoms were confirmed using medical diagnoses.

One test looked at pilots' health and showed 88 percent were aware of exposure to aircraft contaminated air. Almost 65 percent reported specific health effects, while 13 percent had died or experienced chronic ill [health](#).

## **Repeated exposure**

The other test looked at specific oil leak incidents: 80 percent involved fumes only and all of the events took place when the aircraft was

preparing for, or in, flight.

Two-thirds of the incidents involved further reports of fumes both before and after the incident. 93 percent of the incidents involved symptoms ranging from in-flight impairment to incapacitation and almost 75 percent included adverse symptoms in more than one crew member, with anywhere between 10 and 23 different symptoms reported in relation to 47 percent of events.

Eighty-seven percent of the incidents confirmed oil leakage from the engines during subsequent maintenance investigations.

Professor Vyvyan Howard, Professor of Pathology and Toxicology at the University of Ulster, added: "What we are seeing here is aircraft crew being repeatedly exposed to low levels of hazardous contaminants from the engine oils in bleed air, and to a lesser extent this also applies to frequent fliers.

"We know from a large body of toxicological scientific evidence that such an exposure pattern can cause harm and, in my opinion, explains why aircrew are more susceptible than average to associated illness. However, exposure to this complex mixture should be avoided also for passengers, susceptible individuals and the unborn."

More than 3.5 billion passengers and 500,000 aircrew were exposed to low levels of engine oils in 2015. Unfiltered breathing air is supplied to aeroplane cabins via the [engine](#) compressor.

**More information:** Aerotoxic Syndrome: A New Occupational Disease? [www.euro.who.int/data/assets ... Syndrom\\_ENG.pdf?ua=1](http://www.euro.who.int/data/assets/pdf_file/0005/359122/Syndrom_ENG.pdf?ua=1)

Provided by University of Stirling

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