

Vapers and non-smokers have the same flourishing gut flora

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The first study of its kind has found that people who vape have the same mix of gut bacteria as non-smokers, whilst smokers have significant changes to their microbiome.

The international team of researchers led by Newcastle University,

analysed the bacteria of [tobacco smokers](#), users of e-cigarettes and non-smokers from samples throughout the digestive tract, including in the mouth and gut.

Significant changes were found in the [gut bacteria](#) of the smokers, with an increase in the *Prevotella* bacteria which is linked to an increased risk of colon cancer and colitis.

There was also a decrease in the presence of *Bacteroides* in smokers, a [beneficial bacteria](#) or probiotic. A lower level of *Bacteroides* has been associated with Crohn's disease and obesity.

In contrast, the [gut flora](#) of those using e-cigarettes was the same as a non-smoker.

Lead author of the study was Dr Christopher Stewart from the Institute of Cellular Medicine at Newcastle University who published the findings today in *PeerJ*. He explains: "The bacterial cells in our body outnumber our own human cells and our microbiome weighs more than our brain, yet we are only just beginning to understand its importance on our health.

"More investigation is needed but to find that vaping is less-damaging than smoking on our gut bacteria adds to the incentive to change to e-cigarettes and for people to use them as a tool to quit smoking completely."

Comparing microbiota

This [pilot study](#) is the first to compare microbiota in tobacco smokers and electronic cigarette users.

Samples were taken from 10 e-cigarette users, 10 tobacco smokers and

10 controls who didn't smoke. Faecal, mouth (buccal) and [saliva samples](#) underwent targeted gene sequencing to identify the bacteria present.

This revealed significant changes in the gut bacteria of the faecal samples.

In the mouth and saliva samples, which are sites directly exposed to the smoke or vapour, the researchers also found that the bacteria in smokers was different to those of the non-smokers. However, like in the gut, the [bacteria](#) in the mouth and saliva samples were similar in e-cigarette users and [non-smokers](#).

Dr Stewart adds: "This research comes as we see a huge increase in the numbers of people using electronic cigarettes and it becomes increasingly important that we understand the effect on the human body."

As more people take up vaping, the team call for further research to be carried out and to follow up on this pilot study, they are aiming to study a much larger group over a longer period. They also suggest that further investigation into sex-specific microbiota profiles is carried out, as this study involved only two women.

More information: Effects of tobacco smoke and electronic cigarette vapor exposure on the oral and gut microbiota in humans: a pilot study. Christopher J Stewart, Thomas A Auchtung , Nadim J Ajami, Kenia Velasquez , Daniel P Smith , Richard De La Garza, Ramiro Salas , Joseph F Petrosino. *PeerJ* (2018). [DOI: 10.7717/peerj.4693](https://doi.org/10.7717/peerj.4693)

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