

# Young vapers perform worse than non-vapers in exercise testing, research finds

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Young people who vape perform worse than non-vapers in tests designed to measure their capacity for exercise, according to a study presented at the [European Respiratory Society \(ERS\) Congress](#) in Vienna, Austria.

The research also showed that the performance of young vapers was similar to that of young smokers.

The study adds to growing evidence that long-term use of vaping is harmful and challenges the idea that vaping could be a healthier alternative to smoking.

The research was presented by Dr. Azmy Faisal, senior lecturer in cardiorespiratory physiology in the department of sport and [exercise sciences](#) at Manchester Metropolitan University, UK. He said, "Previous research has shown that vaping is linked to lung inflammation and damage, and harmful changes to the [blood vessels](#). Although some research suggests that vaping could be used to cut back or quit smoking, we don't yet know what longer-term vaping use does to our bodies."

The study included 60 people in their 20s who all had normal lung function according to spirometry testing. Twenty were non-smokers and non-vapers, 20 had been vaping for at least two years, and 20 had been smoking for at least two years.

Each person took part in an incremental exercise test on a static bike. This is the gold standard for testing [physical ability](#) and how well a person copes with exercise, looking at their heart, lungs, and muscles' responses at harder and harder levels until they reach their maximum. They were also given blood tests and an ultrasound scan to analyze how well their arteries were functioning.

On average, the group of young vapers had lower peak exercise capacity (186 watts) than the group who did not vape or smoke (226 watts) but similar capacity to the group of smokers (182 watts). This is a measure of the maximum amount of physical exertion that a person can achieve. At peak exercise, vapers and smokers were also less able to consume oxygen on average (2.7 liters per minute and 2.6 liters per minute)

compared to the non-smoking, non-vaping groups (3 liters per minute).

Both vapers and smokers showed signs that their blood vessels were not working as well as the non-smoking and non-vaping group, according to the blood tests and ultrasound scans. The smokers and the vapers were more out of breath, experienced intense leg fatigue and had higher levels of lactate in their blood, a sign of muscle fatigue, even before they reached their maximum level of exercise.

Dr. Faisal said, "In this study, we looked at a group of [young people](#) with no apparent signs of lung damage. Among the people who had been vaping or smoking for at least two years, we saw important differences in how well they coped with exercise. The smokers and the vapers had measurably excessive breathing while using the exercise bikes. They found it harder to breathe, their muscles became more fatigued, and they were less fit overall. In this regard, our research indicated that vaping is no better than smoking."

Dr. Filippos Filippidis is Chair of the ERS Tobacco Control Committee, a reader in public health at Imperial College London, and was not involved in the research. He said, "Vapes are being sold cheaply and in a variety of flavors to appeal to young people. As a result, we're seeing more and more young people take up the habit without knowing what the long-term consequences could be to their health.

"Although it's always a challenge to know if the associations we find in these studies are causal or a result of some other systematic differences between groups, people who vape need to be aware that using these products could make them less fit and able to take part in exercise. Doctors and policymakers also need to know about the risks of vaping, and we should be doing all we can to support children and young people to avoid or quit [vaping](#)."

**More information:** Abstract no: OA1954 "Detrimental effects of electronic cigarettes on vascular function and ventilatory efficiency during exercise", by Azmy Faisal et al; Presented in session, "Exercise testing: what's new in pulmonary physiology?" at 15:45-17:00 CEST on Sunday 8 September 2024. [[k4.ersnet.org/prod/v2/Front/Pr ... ?e=549&session=17930](https://k4.ersnet.org/prod/v2/Front/Pr...?e=549&session=17930)]

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