

Study suggests vaping can harm the heart, but it's far from proven

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Chemicals in e-cigarette vapor produce short-term signs of potential cardiovascular harm, according to a recently published study that opens up a new front in the vaping debate.

The signs of harm were similar to but lesser than those induced by smoking, according to the study. It compared the effects of smoking and vaping with the same nicotine content on the blood vessels of volunteer subjects. However, the study didn't find evidence of actual damage.

Researchers examined a number of markers, including those of [oxidative stress](#), vitamin E levels and nitric oxide bioavailability. They also performed flow-mediated dilatation, or FMD, which determines the ability of [blood vessels](#) to expand to convey more blood.

"Our study demonstrates that both cigarettes (and e-cigarettes) have unfavorable effects on markers of oxidative stress and FMD after single use, although e-cigarettes appeared to have a lesser impact," the study stated. "Future studies are warranted to clarify the chronic vascular effects of E-cigarette smoking."

The study was conducted in 40 healthy men and women; 20 of them smokers and 20 nonsmokers. It was published in the journal *Chest* by a team led by Roberto Carnevale of Sapienza University of Rome in Rome, Italy.

So what does that mean for vapers?

Those who support e-cigarettes as a tobacco alternative say the study doesn't actually demonstrate any danger, especially compared to smoking.

And since e-cigarette use produced a lesser impact, it can be argued that the study supports the use of e-cigarettes over combustible cigarettes as a means of harm reduction. E-cigarettes don't need to be harmless, just less harmful than cigarettes to be a better alternative for smokers who still crave nicotine.

E-cigarette skeptics say the study provides a big red flag of a new danger from e-cigarettes.

They say the signs of potential cardiovascular damage point to a new factor not sufficiently considered by e-cigarette advocates. Since e-cigarettes became popular scarcely a decade ago, more such unpleasant surprises could be in the offing. For example, some of the flavoring agents used in e-cigarettes haven't been well-studied for their effects when inhaled.

Trying to reconcile these views with agreed-upon facts - and how to interpret facts even when both sides agree on them - is difficult.

Vaping research is extremely polarized, with researchers lining up on predictable sides. This makes it hard to get informative exchanges of ideas. It also makes it easy for advocates and reporters to lapse into cherry-picking which researchers they find credible.

So let's get some contrasting perspectives.

Dr. Wael Al-Delaimy of the University of California, San Diego, a vaping skeptic, said the study was "carefully conducted" by the researchers.

"They showed that e-cigarettes basically had the same detrimental negative impact on vascular and endothelial health as that of combustion cigarettes showing the increase in the markers of oxidative stress," Al-Delaimy wrote by email.

"There were a couple of markers that did not go up with e-cigarettes as much as after cigarette smoking, but that does not reassure us about the long term impact of e-cigarettes on vascular health.

"I am rather concerned by the claims of many proponents of vaping that e-cigarettes are harmless and that the vapor it produces has no negative health impact before they actually verify this through human studies such as this recently published one.

"We have always cautioned against supporting such products without evidence about its safety to the users, and now more evidence is emerging demonstrating potential risks to public health in support of our advice about not blindly supporting e-cigarettes.

"The longer the people use these products the more evidence will emerge on how they might influence health. We therefore should not prompt them until we know all the risks associated with them to better inform the public about such risks for current and future users."

In short, better safe than sorry, Al-Delaimy is saying.

Vaping advocate Clive Bates, a U.K.-based public health commentator, said the study should have compared the markers with those found in coffee.

Similar signs of possible cardiovascular damage were linked to consumption of coffee with caffeine in a 2005 study, Bates wrote in a comment on the Chest study.

"A comparison with coffee would have made a worthwhile additional arm to this study and may have helped with interpreting whether there is a material risk of harm," Bates wrote. "If the effects are similar to those experienced by coffee drinkers, that might have provided valuable reassurance for smokers making an informed choice about quitting smoking by switching to e-cigarettes."

Bates also said it's worth exploring if the observed effects of e-cigarette use on vascular function are caused by nicotine.

"However, that would also be reassuring to e-cigarette users," he wrote. "Nicotine has well-documented effects on the body but these effects have not been found to be a significant cause of the diseases attributed to smoking, including cardiovascular disease."

Finally, Bates said exaggerating the dangers of e-cigarettes also causes harm.

"Overstating the risks of [e-cigarettes](#) is logically and ethically equivalent to understating the risks of tobacco [smoking](#)," Bates says. "The latter was the practice of tobacco companies 30 years ago and it is essential to challenge the former in today's [public health](#) discourse."

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