

Scientists are beginning to learn how vaping impacts teens — and the results are troubling

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- Vaping, which involves puffing on vaporized liquid nicotine using an e-cig or vape pen, appears to be **wildly popular among teens**.
- In an ironic twist, young people who try e-cigs are at a **far higher risk of becoming conventional cigarette smokers** compared with teens who don't.
- Still, the available evidence suggests that vaping is **healthier than smoking**, and some adults are using e-cigs to switch and eventually quit.

Vaping appears to be **wildly popular among teens** who use e-cigs illegally. And in an ironic twist, teens who try vaping are at a **far higher risk of becoming smokers** compared with teens who don't.

A new study puts the figure into stark numerical terms: while as many as 2,070 adults used e-cigs to quit in 2015, another 168,000 young people who used the devices went on to become smokers of conventional cigarettes. The analysis, led by researchers at the Geisel School of Medicine at Dartmouth University, was **published this month in the journal PLOS One**.

It comes alongside a new report from the Centers for Disease Control and Prevention which found that roughly four out of five adolescents are exposed to e-cig advertisements.

"Based on the existing scientific evidence ... e-cigarette use currently represents more population-level harm than benefit," the Dartmouth researchers wrote in their study.

As many as 168,000 new smokers



For the new study, Dartmouth researchers used 2014 census data and surveys to build a mathematical model of the link between vaping and smoking. Their evidence suggests that during 2015, roughly 2,070 smokers successfully quit with the aid of e-cigs.

But within the same time frame, their model suggested that as many as 168,000 young people who'd never previously smoked cigarettes started smoking regularly after vaping for the first time.

That said, the study is a model — it's not a controlled study that looks at actual habits, so the findings are somewhat limited. There's also no way to know, for example, if the e-cig users in the study who went on to smoke conventional cigarettes might have become smokers anyway, although the researchers attempted to control for that in their model.

But the new analysis is far from the first study to show evidence that teens who vape are more likely to go on to smoke.

A spate of research dating back as far as 2015 has suggested that teens who vape are [anywhere between two and seven times](#) more likely to eventually smoke conventional cigarettes as teens who never try e-cigs.

Still, scientists aren't clear why this is happening.

While some have argued that vaping could be linked with a [so-called "gateway effect"](#) whereby young people who vape become addicted to nicotine and are thus more likely to transition to traditional cigarettes, others have said this doesn't make sense.

"I honestly can't think of why this would be," [Ana Rule](#), a professor of environmental health and engineering at Johns Hopkins University and an author of another study on e-cigs and teens told Business Insider about the phenomenon. "It is my understanding that vaping is a much more pleasurable experience, is socially acceptable (as opposed to smoking) and delivers a good dose of nicotine."

Either way, public health experts are worried about vaping's growing popularity among young people.

Why vaping is so popular among teens

As many as 168,000 new smokers



At high schools across the country, vaping has become [a fad with its own verb](#). This is not entirely surprising. Kids and teens are exposed to a plethora of advertising for e-cigs that mimics much of the cigarette advertising of the 1960s. A [CDC report published Friday](#) found that roughly four in five middle and high school students saw e-cig ads in 2016.

Although ostensibly healthier than deadly cigarettes, e-cigs still contain [highly addictive nicotine](#). The devices also possess a handful of qualities that make them

especially appealing to young people.

Unlike conventional cigarettes, which have a natural stop mechanism — they burn to the end — e-cigs can be re-filled and reused. Additionally, e-cigs are discrete and sometimes odorless (or have a non-offensive smell). Vaping isn't universally banned in indoor and outdoor places. Many vape pens are sleek, small, colorful, and fairly affordable.

But the evidence is mounting that teens who vape are more likely to go on to smoke conventional cigarettes.

A [2015 study published in the Journal of the American Medical Association](#) suggested that teens who vaped had three times the risk of eventually smoking conventional cigarettes as teens who never tried e-cigs. A [larger follow-up study](#) done the following year appeared to confirm those findings, as did a [2018 study published in the Journal of Adolescent Health](#) which looked at roughly 1,150 British adolescents aged 11 to 18.

For the 2018 paper, teens whose nicotine exposure began with e-cigs appeared to have as much as a 12 times greater chance of smoking cigarettes 4 months later than kids who didn't vape, even after the researchers controlled for several big [risk factors for smoking](#).

The [first large and comprehensive review](#) of all the published research on e-cigs added some additional weight to that conclusion, finding "substantial evidence" that young people who vape are more likely to smoke conventional cigarettes than those who don't.

"Vaping among teens is my (and most public health professionals) biggest worry," Rule [told Business Insider](#) last month.