

Study finds increasingly popular oral nicotine pouches do little to curb smokers' cravings

November 15 2023



Prepackaged pouches of nicotine, flavoring, artificial sweetener and other chemicals are rising in popularity as an alternative to cigarettes. While oral nicotine pouches have fewer carcinogens than cigarettes, a new study by The Ohio State University Comprehensive Cancer Center's Center for Tobacco Research finds they do not curb nicotine cravings as quickly as cigarettes. Credit: The Ohio State University Comprehensive Cancer Center

Oral nicotine pouches, a tobacco-leaf-free product marketed as an alternative to cigarettes, do little to curb current smokers' nicotine cravings, according to a new study. Public health scientists with The Center for Tobacco Research at The Ohio State University Comprehensive Cancer Center—Arthur G. James Cancer Hospital and Richard J. Solove Research Institute report these findings in the journal *Addiction*.

Nicotine pouches are small pre-portioned bags filled with nicotine powder, flavorings, artificial sweeteners and other chemicals that extend shelf life. Marketed as a smoke-free, tobacco-free alternative to cigarettes, these products have become increasingly popular since entering the consumer market in 2016.

Lead author Brittney Keller-Hamilton, Ph.D., says these products are appealing to current smokers because they contain fewer known carcinogens and toxins than other tobacco products and can be used indoors where smoking is banned. Researchers are concerned, however, that if not formulated and regulated very intentionally, these products could result in an increase of nicotine product use among [young people](#) rather than reducing cancer risk among smokers.

For the current study, researchers evaluated whether nicotine pouches with different levels of nicotine concentration were more or less appealing to smokers.

They found that current smokers had a much greater spike of nicotine in their [blood levels](#) and much sharper relief from craving symptoms when smoking than when using both the low- and higher-dose nicotine pouches. That spike of nicotine measurable in the blood occurs about five minutes after smoking, explained Keller-Hamilton.

With nicotine pouches, it is a much more gradual process, like other smokeless [tobacco products](#)—and it typically takes 30 minutes to an hour to hit peak effectiveness, meaning that feeling of relief from craving symptoms. The same is true for the decline in nicotine levels—it is a much more gradual decline as well for oral pouches.

Because of this, she says, it is reasonable to see how the craving for instant gratification of cigarette smoking is more appealing than oral nicotine pouches for individuals who are already experiencing nicotine addiction.

"Our challenge is to approach regulation of nicotine pouches to limit their appeal among young people while making them more appealing to adult smokers who would see [health benefits](#) by switching from cigarettes—which have the most severe health impacts with [long-term use](#)—to nicotine pouches," said Keller-Hamilton.

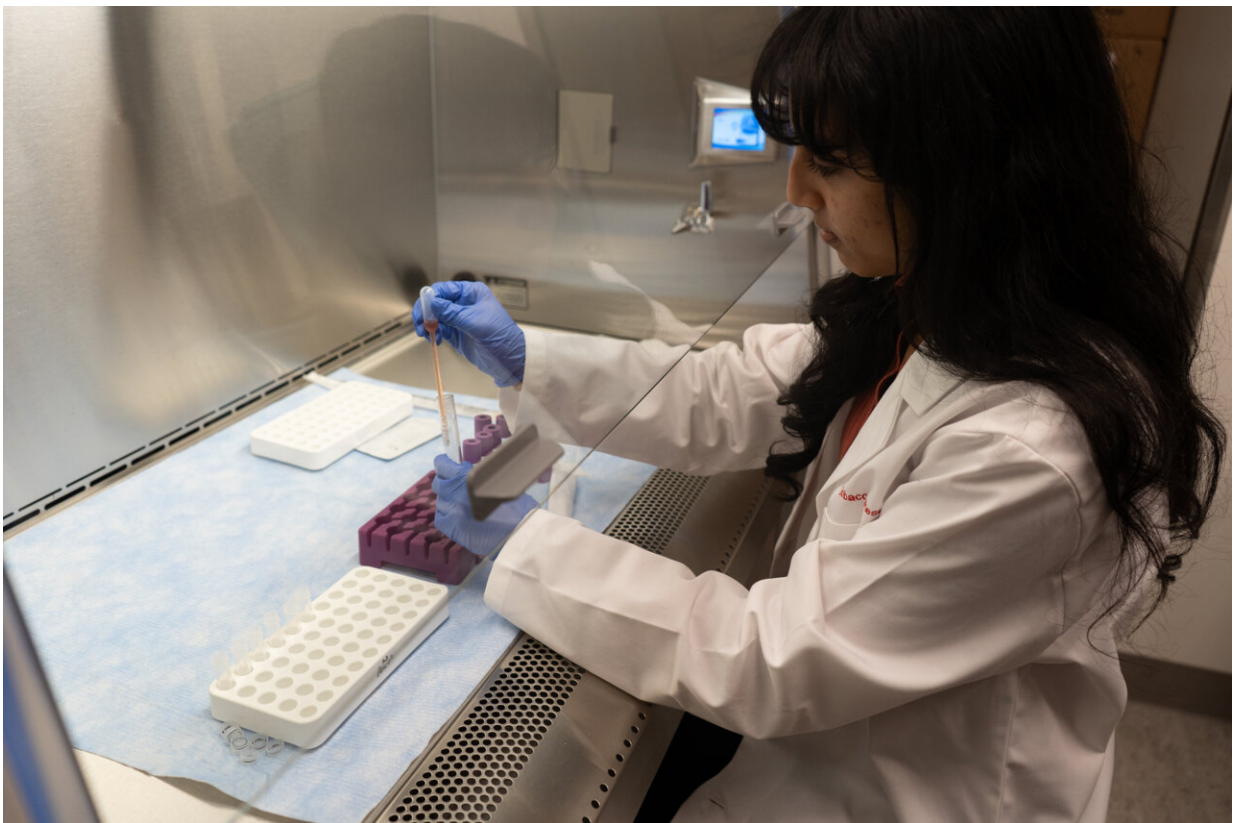
Study results and methods

For the current study, Keller-Hamilton's team recruited 30 active adult smokers from Appalachian communities in Ohio, where both smoking and lung cancer rates are disproportionately higher than in the rest of the United States.

Study participants were observed during three sessions where they either smoked their usual brand of cigarette or used oral pouches containing three milligrams (mg) or six mg of nicotine. Blood samples were collected repeatedly during product use to measure changing plasma nicotine levels. Participants were also asked to complete questionnaires about nicotine cravings right before product use and again at five, 15, 30, 60 and 90 minutes after starting to use the product.

"Nicotine addiction is a very real problem for many people, and most

current smokers express wanting to quit but often fail because it is so challenging to stop—and to make it stick long term," said Keller-Hamilton. "For smokers trying to make a healthier choice or stop smoking cigarettes, they should talk with their health care providers or call their state's quit line to find the best smoking cessation options for them."



A study by researchers at The Ohio State University Comprehensive Cancer Center's Center for Tobacco Research found oral nicotine pouches, which are increasingly popular products marketed as an alternative to cigarettes, do little to curb smokers' nicotine cravings. Credit: The Ohio State University Comprehensive Cancer Center

Ongoing research puts science behind tobacco regulation

Ongoing research to inform oral nicotine pouch regulation is underway at Ohio State's Center for Tobacco Research. Scientists will conduct further research to inform oral nicotine [pouch](#) regulations and promote public health. This includes examining how the various dimensions of nicotine affect the appeal, addictiveness, and use of oral nicotine pouches.

Researchers will also look at how these factors influence product switching—for example, from smokeless tobacco or combustible cigarettes to pouches. In addition, the study will look at how the use of these products impacts the microbiome of people who switch from smoking cigarettes or using smokeless tobacco to using [nicotine](#) pouches.

More information: Evaluating the effects of nicotine concentration on the appeal and nicotine delivery of oral nicotine pouches among rural and Appalachian adults who smoke cigarettes: A randomized cross-over study, *Addiction* (2023). [DOI: 10.1111/add.16355](https://doi.org/10.1111/add.16355)

Provided by Ohio State University Medical Center

Citation: Study finds increasingly popular oral nicotine pouches do little to curb smokers' cravings (2023, November 15) retrieved 11 May 2024 from <https://medicalxpress.com/news/2023-11-popular-oral-nicotine-pouches-curb.html>

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