

# Young adults with ADHD are at higher risk for developing nicotine addiction

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People with attention deficit hyperactivity disorder (ADHD) are more likely to self-administer nicotine and report more pleasurable responses than people without the condition, according to a study by Duke Health researchers.

In a paper published in the journal *Neuropsychopharmacology*, Duke researchers tested a nicotine [nasal spray](#) to determine the effects of the addictive chemical on non-smoking young adults. They recruited 136 people aged 18-25 years. About half (61) of the participants had a clinical diagnosis of ADHD, and the others (75) were free from any psychiatric condition.

During the first three sessions, the researchers exposed the participants to 2 different doses of nicotine and a placebo spray with no nicotine. In subsequent sessions, they asked participants to choose nicotine or placebo, first while in a relaxed environment in the lab and then while having to solve math problems. The participants did not know which spray contained nicotine.

"We found that regardless of demand conditions,

the people with ADHD chose the spray with nicotine," said lead author Scott Kollins, Ph.D., professor in the Department of Psychiatry and Behavioral Sciences in the Duke University School of Medicine. "Meanwhile, the people who did not have ADHD chose nicotine more often when they had to work on the cognitively challenging math problems."

The effects of nicotine on the brain and behavior have been studied for decades, and it's no surprise that people with ADHD gravitate toward it since nicotine affects brain physiology that is involved in the clinical condition of ADHD.

"This suggests that the very first exposure to nicotine might be more pleasurable or reinforcing for individuals with ADHD, which in turn may lead to higher rates of dependence," Kollins said. "This is important both for combustible cigarette smoking and the possibility of getting hooked on e-cigarettes."

The study team followed up with participants for six months after the study to ensure that none of them had initiated nicotine or tobacco use—and none had.

However, results from the study emphasize the importance of talking to children and adolescents with ADHD about the effects of nicotine and their potential risk for becoming addicted long before they encounter it on their own.

"It's not enough for us to wait for kids and adolescents who have ADHD to have already experienced [nicotine](#)," Kollins said. "We should talk to them about that sooner, before they have their first puff of a cigarette or vape with e-cigarettes."

**More information:** Scott H. Kollins et al. Increased subjective and reinforcing effects of initial nicotine exposure in young adults with attention deficit hyperactivity disorder (ADHD) compared to

matched peers: results from an experimental model  
of first-time tobacco use,  
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