

Mindfulness meditation IBMT trims craving for tobacco

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Addiction to smoking and other substances involves a particular set of brain areas related to self-control, according to numerous research. For a new study, researchers wondered if a training approach designed to influence this addiction pathway could influence smokers to reduce their tobacco use—even if smokers did not intend to do so.

It worked. The study, published online in the Early Edition of the *Proceedings of the National Academy of Sciences*, found that smokers trained with a form of mindfulness meditation known as Integrative Body-Mind Training (IBMT) curtailed their [smoking](#) by 60 percent. Subjects in a control group that received a relaxation regimen showed no reduction.

Studies of smoking usually recruit those desiring to quit or reduce their smoking. Researchers approached this study differently. They sought volunteers interested in reducing stress and improving their performance. In actuality, the experiment was designed to explore how IBMT—previously shown to improve the self-control pathway related to addiction—would impact smoking behavior. Among the volunteers were 27 smokers, mean age 21, who smoked on average 10 cigarettes a day; 15 of them (11 men) were placed in the experimental group receiving IBMT training for a total of five hours over two weeks.

IBMT, which involves whole body relaxation, [mental imagery](#) and mindfulness training led by a qualified coach, has long been practiced in China. It has been under study for its potential impacts on a variety of

stresses and related changes in the brain including function and structure. Co-authors of the paper, Yi-Yuan Tang of Texas Tech University in Lubbock and Michael I. Posner, professor emeritus of psychology at the University of Oregon, have collaborated on a series of studies on IBMT. Tang, formerly a research professor at the UO, is now with the psychology department and director of the Neuroimaging Institute at Texas Tech.

"We found that participants who received IBMT training also experienced a significant decrease in their craving for cigarettes," Tang said. "Because mindfulness meditation promotes personal control and has been shown to positively affect attention and an openness to internal and external experiences, we believe that meditation may be helpful for coping with symptoms of addiction."

Many of the participants only recognized that they had reduced smoking after an objective test using measured exhaled carbon monoxide showed the reduction, Tang said.

While previous studies have suggested such meditation may mediate several forms of addiction such as those tied to alcohol, cigarettes and cocaine, they have not been approached with a randomized controlled design with an active relaxation control, the researchers noted.

Before and after the experiments, all participants were tested for carbon monoxide levels. To identify brain mechanisms that may underlie smoking reduction, the researchers also used functional magnetic resonance imaging (fMRI) during rest to understand the [brain areas](#) involved.

According to the fMRI results, smokers before entering IBMT had reduced activity in their anterior cingulate cortex (ACC), left lateral prefrontal cortex (PFC) and other areas, all of which indicate impaired

self-control. After two weeks of IBMT, smokers had significantly increased activity in their ACC, medial PFC and inferior frontal gyrus/ventrolateral PFC. No significant changes were found among smokers in the non-IBMT control group.

In follow-ups after two and four weeks, five of the responding smokers whose smoking had been significantly reduced after IBMT reported that they were continuing to maintain the improvement.

In addition to Tang and Posner, Rongxiang Tang of the University of Texas at Austin was a co-author of the study. They noted that IBMT's apparent ability to enhance self-control and reduce stress could make the practice useful in reducing smoking and craving "even in those who have no intention to quit smoking" as well as treating individuals with other addictions. IBMT, they wrote, "does not force participants to resist craving or quit smoking; instead it focuses on improving self-control capacity to handle craving and smoking behavior."

The researchers, however, caution that the participant pool was small and additional investigation is warranted. "We cannot say how long the effect of reduced smoking will last," Posner said. "This is an early finding, but an encouraging one. It may be that for the reduction or quitting to have a lasting effect, smokers will need to continue to practice meditation for a longer time period."

"Researchers at the University of Oregon are developing science-based applications for effective prevention and intervention strategies," said Kimberly Andrews Espy, vice president for research and innovation and dean of the UO graduate school. "This research is furthering our understanding of how the brain works and may lead to addiction treatments that improve the health and well-being of people throughout the world."

More information: www.pnas.org/cgi/doi/10.1073/pnas.1311887110

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