

Waterpipe tobacco smokers inhale same toxicants as cigarette smokers

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Smoking tobacco through a waterpipe exposes the user to the same toxicants - carbon monoxide and nicotine - as puffing on a cigarette, which could lead to nicotine addiction and heart disease, according to a study led by a Virginia Commonwealth University researcher published in the December issue of the *American Journal of Preventive Medicine*.

In the past eight to 10 years, smoking tobacco with a waterpipe, also called a hookah or shisha, has grown in popularity in the United States, especially among adults 18 to 24. The belief among some waterpipe users is that this method of smoking tobacco delivers less tar and nicotine than regular cigarette smoking and has fewer adverse health effects.

"The results are important because they provide concrete, scientific evidence that contradicts the oft-repeated myth that waterpipe [tobacco smoking](#) does not involve users inhaling the same harmful chemicals that cigarette smokers do," said principal investigator Thomas Eissenberg, Ph.D., professor in the VCU Department of Psychology.

"We hope that these results will be used by physicians and public health officials to inform waterpipe tobacco smokers that they risk tobacco-induced [nicotine addiction](#) and cardiovascular disease," he said.

According to Eissenberg, no previous single study has compared the human toxicant exposure associated with waterpipe and cigarette smoking under controlled, laboratory conditions.

Between 2008 and 2009, Eissenberg, together with Alan Shihadeh, Sc.D., associate professor at the American University of Beirut in Lebanon, compared the toxicant exposure associated with waterpipe smoking and cigarette smoking among 31 participants between the ages of 18 and 50. Each participant completed two 45-minute sessions, one in which they smoked tobacco using a waterpipe and the other in which they smoked a single cigarette. The level of nicotine and carbon monoxide in the participants' blood was measured, as was heart rate, puff number and puff volume.

They found that on average, the levels of carbon monoxide to which participants were exposed were higher when they were smoking a waterpipe than when they were smoking a cigarette. Specifically, the peak waterpipe COHb level - amount of [carbon monoxide](#) found bound to red blood cells - was three times that observed for cigarette. However, they observed that the peak nicotine levels did not differ - but there was exposure to [nicotine](#) through both methods of tobacco smoke. Examining the number and volume of each puff showed that compared with smoking a cigarette, waterpipe tobacco smoking involved inhalation of about 48 times more smoke.

In previous work, Shihadeh had conducted studies that demonstrated that waterpipe tobacco smoke contains compounds that cause cancer and other disease, so the large amount of smoke inhaled when using a waterpipe was a concern for the research team.

Eissenberg, who is director of the VCU Clinical Behavioral Pharmacology Laboratory and a researcher with the VCU Institute for Drug and Alcohol Studies, and Shihadeh, who is director of the American University of Beirut Aerosol Research Laboratory, are continuing their laboratory studies of waterpipe tobacco smoking to examine what other dangerous chemicals are inhaled when individuals and groups engage in this behavior. They hope that future large-scale

studies of the health effects of tobacco use will examine waterpipe smokers separately, to determine the extent to which waterpipe tobacco [smoking](#) can be linked to tobacco-caused disease.

Source: Virginia Commonwealth University ([news](#) : [web](#))

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