



Comparison of Nicotine and Carcinogen Exposure with Water pipe and Cigarette Smoking.

Jacob P 3rd, et al. [Show all](#)

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1Clinical Pharmacology, UCSF.

Abstract

Background Smoking tobacco preparations in a water pipe (hookah) is widespread in many places of the world and is perceived by many as relatively safe. We investigated biomarkers of toxicant exposure with water pipe compared to cigarette smoking. **Methods** We conducted a cross-over study to assess daily nicotine and carcinogen exposure with water pipe and cigarette smoking in 13 people who were experienced in using both products. **Results** While smoking an average of 3 water pipe sessions compared to smoking 11 cigarettes per day, water pipe use was associated with a significantly lower intake of nicotine, greater exposure to carbon monoxide and a different pattern of carcinogen exposure compared to cigarette smoking, with greater exposure to benzene and high molecular weight PAHs, but less exposure to tobacco-specific nitrosamines, 1,3-butadiene and acrolein, acrylonitrile, propylene oxide, ethylene oxide, and low molecular weight PAHs. **Conclusions** A different pattern of carcinogen exposure might result in a different cancer risk profile between cigarette and water pipe smoking. Of particular concern is the risk of leukemia related to high levels of benzene exposure with water pipe use. **Impact** Smoking tobacco in water pipes has gained popularity in the United States and around the world. Many believe that water pipe smoking is not addictive and less harmful than cigarette smoking. We provide data on toxicant exposure that will help guide regulation and public education regarding water pipe health risk.

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