

A Weekly FAX from the Center for Substance Abuse Research

University of Maryland, College Park

Scientific Evidence of the Health Risks of Hookah Smoking

Does the smoothness of waterpipe smoke mean it is safer than cigarette smoke? While hookah smoke is less irritating to the throat, it still contains tar, carbon monoxide, and nicotine. The smoothness of hookah smoke may actually encourage deeper inhalation and thus greater exposure to these elements. The World Health Organization estimates that hookah users may inhale as much smoke during one hookah session as a cigarette smoker would inhale consuming 100 or more cigarettes.

Does the water in a hookah filter out harmful ingredients? The water filters out only a small amount of the carbon monoxide, nicotine, tar, and heavy metals found in hookah smoke. For example, less than 5% of nicotine is filtered out into the water. This nominal reduction of nicotine may be offset by a tendency to compensate by inhaling more deeply or more often to get the desired amount of nicotine.

Is hookah smoking safer than cigarette smoking because the tobacco is not burned? While the tobacco in a hookah is heated rather than burned, it still produces smoke. In addition, hookah tobacco is often lit using charcoal, which itself releases high levels of carbon monoxide. The levels of carbon monoxide (CO) produced and absorbed by hookah smoking, which may be as high or higher than that of cigarettes, vary depending on hookah size (higher CO in smaller hookahs), the type of hose on the hookah (higher CO with a plastic hose), the type of charcoal, and the type of tobacco.

My hookah tobacco says it has no tar. Does this mean it is safer to smoke than other tobacco? Tobacco itself does not contain tar—tar is created when tobacco burns. While several studies have found that tobacco smoked through a hookah produces more tar than tobacco smoked in a cigarette, it has been suggested that it is the quality—not the quantity—of tar produced that is of concern. Since the tobacco smoked through a hookah is heated rather than burned, it reaches much lower temperatures than in a cigarette. The temperature at which tar is produced from burning tobacco may be related to how hazardous and carcinogenic it is, thus the type of tar produced by hookah smoke may be less carcinogenic than that produced by cigarette smoke.

Is hookah smoking safer than cigarette smoking because the nicotine content is lower? Since the nicotine content of both cigarettes and hookah tobacco varies greatly, it is hard to determine which product has higher nicotine. However, a meta-analysis of studies of hookah smokers found that a person who smokes hookah daily absorbs as much nicotine as someone who smokes 10 cigarettes per day, while an occasional hookah smoker (once during a four-day period) absorbs as much nicotine as smoking two cigarettes per day.

Can I become addicted to smoking a hookah? Hookah smoking has potentially the same risks of dependence as any other way of using tobacco. However, the risks may be decreased slightly because of the intermittent, recreational nature of hookah use. The limited research on hookah dependence suggests that a transition from social to individual use, sharing less frequently, and a change of behavior to accommodate hookah use may be signs of possible dependence.

Is smoking non-tobacco, herbal maassel harmful? While herbal maassel does not contain nicotine, it still produces tar and CO when burned.

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Sources

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- Al Mutairi, S.S., Shihab-Eldeen, A.A., Mojiminiyi, O.A., and Anwar, A.A. Comparative Analysis of the Effects of Hubble-Bubble (Sheesha) and Cigarette Smoking on Respiratory and Metabolic Parameters in Hubble-Bubble and Cigarette Smokers. *Respirology* 11:449-455, 2006.
- American Lung Association. *An Emerging Deadly Trend: Waterpipe Tobacco Use*. Tobacco Policy Trend Alert. American Lung Association, 2007.
- Asotra, K. Hooked on Hookah? *Tobacco-Related Disease Research Program Newsletter*:8-15, July 2006.
- Chaouachi, K. A Critique of the WHO TobReg's 'Advisory Note' Report Entitled: 'Waterpipe Tobacco Smoking: Health Effects, Research Needs and Recommended Actions by Regulators'. *Journal of Negative Results in BioMedicine* 5(17):doi:1186/1477-5751-1185-1117, 2006.
- Chaouachi, K. The Medical Consequences of Narghile (Hookah, Shisha) Use in the World. *Revue d'Epidemiologie et de Sante Publique* 55:165-170, 2007.
- Knishkowsy, B., and Amitai, Y. Water-Pipe (Narghile) Smoking: An Emerging Health Risk Behavior. *Pediatrics* 116(1):e113-e119, 2005.
- Macaron, C., Macaron, Z., Maalour, M.T., Macaron, N., and Moore, A. Urinary Cotinine in Narguila or Chicha Tobacco Smokers. *J Med Liban* 45(1):19-20, 1997.
- Maziak, W., Eissenberg, T., and Ward, K.D. Patterns of Waterpipe Use and Dependence: Implications for Intervention Development. *Pharmacology, Biochemistry and Behavior* 80:173-179, 2005.
- Maziak, W., Ward, K.D., Afifi Soweid, R.A., and Eissenberg, T. Tobacco Smoking Using a Waterpipe: A Re-Emerging Strain in a Global Epidemic. *Tobacco Control* 13:327-333, 2004.
- Mohammad, K., Chaouachi, K., and Mahmood, R. Hookah Smoking and Cancer. Carcinoembryonic Antigen (CEA) Levels in Exclusive/Ever Hookah Smokers. *Harm Reduction Journal* 5(19):doi:10.1186/1477-7517-1185-1119, 2008a.
- Mohammad, K., Chaouachi, K., and Mahmood, R. Hookah Smoking and Cancer. Carcinoembryonic Antigen (CEA) Levels in Exclusive/Ever Hookah Smokers. *Harm Reduction Journal* 5(19):doi:10.1186/1477-7517-1185-1119, 2008b.

- Neergaard, J., Singh, P., Job, J., and Montgomery, S. Waterpipe Smoking and Nicotine Exposure: A Review of the Current Evidence. *Nicotine & Tobacco Research* 9(10):987-994, 2007.
- Sajid, K.M., Akhter, M., and Malik, G., Qadir. Carbon Monoxide Fractions in Cigarette and Hookah (Hubble Bubble) Smoke. *Journal of the Pakistan Medical Association* 43(9):179-182, 1993.
- Sajid, K.M., Parveen, R., Durr-e-Sabih, Chaouachi, K., Naeem, A., Mahmood, R., and Shamim, R. Carcinoembryonic Antigen (CEA) Levels in Hookah Smokers, Cigarette Smokers and Non-Smokers. *Journal of the Pakistan Medical Association* 57:595-599, 2007.
- Saleh, R., and Shihadeh, A. Elevated Toxicant Yields with Narghile Waterpipes Smoked Using a Plastic Hose. *Food and Chemical Toxicology* 46:1461-1466, 2008.
- Sepetdjian, E., Shihadeh, A., and Saliba, N.A. Measurement of 16 Polycyclic Aromatic Hydrocarbons in Narghile Waterpipe Tobacco Smoke. *Food and Chemical Toxicology* 46:1582-1590, 2008.
- Shafagoj, Y., Mohammed, F., and Hadidi, K. Hubble-Bubble (Water Pipe) Smoking: Levels of Nicotine and Cotinine in Plasma, Saliva and Urine. *International Journal of Clinical Pharmacology, Therapy, and Toxicology* 40(6):249-255, 2002.
- The Bacchus Network. *Top Facts: Hookahs*, 2007.
- Urkin, J., Ochaion, R., and Peleg, A. Hubble Bubble Equals Trouble: The Hazards of Water Pipe Smoking. *The Scientific World Journal* 6:DOI 10.1100/tsw.2006.1332, 2006.
- WHO Study Group on Tobacco Product Regulation. *Waterpipe Tobacco Smoking: Health Effects, Research Needs and Recommended Actions by Regulators*. TobReg Advisory Note. Geneva: World Health Organization, 2005.