
Is sitting by a motorway healthier than smoking a hubble-bubble?

Sedět vedle dálnice zdravější než kouřit vodní dýmku?

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The majority of Charles University students have no idea that water-pipe smoking is more harmful than cigarette smoking – according to a poll carried out by fourth-year students from the Charles University First Faculty of Medicine. Two thirds of almost 700 respondents displayed alarming ignorance as they believed that the hubble-bubble was safer than or equally harmful as cigarette smoking.

“Smoking the hookah is not primarily about nicotine (even though it is possible to develop a nicotine addiction just like in the case of cigarettes), it is mainly a social event. In Prague it has become quite usual for students to meet in a teahouse and order a hubble-bubble. In most cases no one asks about their age nor warns them of the risk of contagious diseases,” says Paulína Klottonová, a student of the Charles University First Faculty of Medicine, who conducted the research along with her fellow students.



Paulína Klottonová
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The absence of health risk prevention is startling; even though 92 percent of the students are aware of the risk of infection, only 34 percent protect themselves actively (by using their own mouthpiece, opting for a water pipe with multiple tubes or using their own hookah).

After one session the levels can reach a state of clinical poisoning

The students' research included measurements of levels of exhaled carbon monoxide. Using the Micro Smokelyzer device manufactured by Bedfont to analyze the exhaled levels, the students found that depending on the depth of breath, a passive water pipe smoker can have more than double the levels of carbonylhaemoglobin than if he or she were standing in the midst of a traffic jam or taking a walk alongside a motorway.

In the case of an active smoker the levels can easily reach the state of clinical poisoning after one session. Its first signs – headache, vertigo, nausea, clouded thinking and facial hyperaemia – can be wrongly considered by the smokers as a natural part of the smoking ritual.

The myth of the filtration power of water

During a session a smoker inhales a large amount¹ of smoke and carcinogenic substances. Surprisingly, almost 40 percent of university students believe in the purifying power of water. However, the water only filters out some of the nicotine. Its main function is to cool the smoke in order to allow deeper inhalation.

The CO and tar content is comparable to smoking 20–200 cigarettes (depending on the volume of breath and type of charcoal used). Compared to cigarettes, water pipe smoke contains demonstrably larger quantities of polycyclic aromatic hydrocarbons (chrysene, phenanthrene, fluoranthene, anthracene, pyrene etc.) and traces of heavy metals². The levels are increased by improper burning as well as aromatic oils, molasses and glycerol, added to the tobacco to enhance flavour.



Hubble-bubbles have become fashionable in recent years and the average age of the first smoking experience is gradually dropping to 16 years, as the research conducted by the students from the First Faculty of Medicine suggests. An increase in the number of hookah users is reported by the [National Institute of Public Health](#) (NIPH). As a 2009 NIPH report suggests, almost 67 percent of people aged 15–24 have smoked the hookah. The latest poll by the First Faculty of Medicine students reported an 80-percent increase in this age category. If you fancy going to a teahouse and lighting up a hubble-bubble, remember that the choice of charcoal used to burn the tobacco mixture has an impact on the health risks. The use of natural charcoal exceeds the European tar limit as many as 102 times compared to cigarettes and the CO content in the smoke is up to 52 times higher.

Besides less common problems such as tobacco addiction or insufficient blood supply to organs due to CO intoxication, there are other complications.

- increased heart rate, higher systolic and diastolic pressure, faster breathing³
- damage to lung function similar to that caused by cigarette smoking, potentially resulting in chronic obstructive pulmonary disease (COPD)⁴
- water pipe smoking increases oxidative stress for the organism⁵
- changes to the eardrum⁵
- dry socket after mandibular 3rd molar extraction⁵
- TB infection was reported after sharing a hubble-bubble⁵



- Researchers: Blahutová S., Čapka D., Gonosová Z., Klottonová P., Kratoňová J., Kravčák J., Sadloňová A., Štěřbová K.
- [1] A smoker can inhale 70 litres of smoke during one session (Ježková M. refers to a [French study](#)), other studies mention for example 90 litres (Shihadeh A, Azar S, Antonios C, Haddad A.: Towards a topographical model of narghile water-pipe café smoking: a pilot study in a high socioeconomic status neighborhood of Beirut, Lebanon. *Pharmacol Biochem Behav.*,79, 2004: 75-82.)
- [2] Martinasek MP, McDermott RJ, Martini L.:Waterpipe (hookah) tobacco smoking among youth, *Curr Probl Pediatr Adolesc Health Care*, 41 (2), 2011 : 34-57.
- [3] Hakim F, Hellou E, Goldbart A, Katz R, Bentur Y, Bentur L.: The acute effects of water-pipe smoking on the cardiorespiratory system; *Chest*, 139(4), 2011: 775-81.
- [4] Raad D, Gaddam S, Schunemann HJ, Irani J, Abou Jaoude P, Honeine R, Akl EA.: Effects of Water-Pipe Smoking on Lung Function: A Systematic Review and Meta-analysis; *Chest*,139(4), 2011: 764-74.
- [5] [NIPH report on water pipe smoking](#)