



## TOBACCO-FREE ME: 0a — ALTERNATIVE NICOTINE DELIVERY SYSTEMS (Article)

### Cigars, Pipes, Hookahs, Snuff, Chewing Tobacco, E-cigarettes

#### Preface

The scientific community has a term to describe how a drug gets into the body and to the brain: *drug delivery system*. Specifically, they substitute the drug they are studying for the word *drug*. Cigarettes are the world's most popular *nicotine* delivery system. According to *TobaccoAtlas.org*, almost 20 percent of Earth's population smokes almost 6 trillion cigarettes per year.

But there are other ways to get nicotine to your brain. The Asset Health Tobacco-Free Me program addresses all forms of nicotine addiction. If your issue is something other than cigarettes, you can still benefit from the information and instructions in this program. Simply insert your particular habit, and adapt the applicable principals.

You know about the other nicotine delivery systems. But common sense and science tells us that the worst health risks of smoking probably come from ... smoke. So, if you're looking for a safer alternative to cigarettes for getting your nicotine fix, you can eliminate cigars, pipes and hookahs.

#### Cigars

It's well-documented that Sigmund Freud, the world's most famous expert on the mind, was a cigar addict who died of cigar-induced cancers, most notably, oral cancer. From age 67 until his death at 83, Freud suffered from multiple cancers in his oral cavity necessitating thirty-three operations. Still, he smoked until the end, unable or unwilling to heed the advice of his many medical friends and associates who attributed his suffering to his cigar habit. What kept him addicted to cigars? Nicotine.

(“Famous Historical People”; [oralcancerfoundation.org](http://oralcancerfoundation.org); retrieved 2/7/14.)

By the way, all of the greatest hits (dangers) of cigar smoking can be yours without inhaling. The nicotine and cancerous cellular activity can all be experienced through simple contact between your cigar and your lips, tongue, and other oral tissue — without ever breathing in a single puff.

#### Pipes

Pipe smoking seems to lack any celebrity cautionary tales like that of Dr. Freud and cigars. But the vast majority of scientific studies put the dangers of pipe smoking right up there with cigars. *WebMD.com* has this to say: “[Cigars and pipe smoking] carry the same health risks — and sometimes even greater risks — than cigarettes. ... Even if you don't inhale, you can get a number of different cancers from smoking pipes and cigars.”

(“Effects of Smoking Pipes and Cigars”; retrieved 2/7/14.)



And there's this:

“Pipe smokers have an especially high risk of cancers of the oropharynx, the area between the back of the roof of your mouth and the top of your throat. Even if you don't inhale, you may develop cancer at any location that comes in contact with the smoke, including your lips and tongue.”

(Polashuk, Nancy; “Dangers of Smoking Pipe Tobacco”; *livestrong.com*; 2/5/14.)

Even proponents have to concede some level of harm. In their article “Don't Blame Tobacco - Blame Biology,” *pipesmagazine.com* sums up their defense of pipe smoking, thusly: “It's not as bad for your health as others would have you believe.”

(Lyles, C. R. S.; 6/1/11.)

Now there's a ringing endorsement.

## Hookahs (water pipes)

How about a visit to one of those newly popular hookah bars that offer group water pipes and flavored tobaccos? According to *setyourdate.org*, one puff from a hookah is roughly equivalent to the smoke volume of an entire cigarette; a single hookah session can equal the toxic exposure of between 1 and 50 cigarettes; and hookah use has been associated with heart disease, cancer, nicotine dependence, decreased pulmonary function, gum disease, infertility and bad breath.

(“Hookah: Facts That Might Surprise You!”; retrieved 2/6/14.)

Can you really risk bad breath?

## Smokeless Tobacco

All right, you say. You'll cut out the smoke and get your nicotine from snuff or chewing tobacco. What harm can “dipping” do? But wait — here's a word from those annoying people at the National Cancer Institute.

“At least 28 chemicals in smokeless tobacco have been found to cause cancer. ... Smokeless tobacco causes oral cancer, esophageal cancer, and pancreatic cancer. ... [It] may also cause heart disease, gum disease and oral lesions other than cancer, such as leukoplakia (precancerous white patches in the mouth).”

(“Smokeless Tobacco and Cancer”; *cancer.gov*; 10/25/10.)



## E-Cigarettes

What's a nicotine addict to do? If you cut out the smoke and the tobacco, What's left? Well, e-cigarettes (which vaporize nicotine for inhalation) are becoming popular. Yeah. Unpolluted nicotine. So "vaping" can't hurt you, Right? The problem is that vaping delivers nicotine, but it's not unpolluted. The good folks at The Food and Drug Administration (FDA) have this to say:

"E-cigarettes [are] not emission-free and ... they contain volatile organic substances, like propylene glycol, and carcinogenic metals like nickel and chromium. ... The public, especially the youth sector, is advised not to start smoking at all and to stop using cigarettes, cigars or e-cigarettes. ... Besides glycol, e-cigarette emissions also contain nicotine, flavors, tobacco-specific nitrosamines, volatile organic compounds, acetone, formaldehyde, acetaldehyde, silicate and various metal particles."

(Tubeza, Philip C.; "FDA Warns on Dangers of E-Cigarettes"; *newsinfo.inquirer.net*; 6/27/13.)

## Pure Nicotine

Here's your last chance. What if you got rid of all the tobacco, all the smoke, and all of the e-cigarette chemicals, and just did nicotine pills or gum?

"Research over the last decade has identified nicotine's carcinogenic potential in animal models and cell culture. Nicotine has been noted to directly cause cancer through a number of different mechanisms such as the activation of MAP Kinases. Indirectly, nicotine increases cholinergic signaling (and adrenergic signaling in the case of colon cancer), thereby impeding apoptosis (programmed cell death), promoting tumor growth, and activating growth factors and cellular mitogenic factors such as 5-LOX, and EGF. Nicotine also promotes cancer growth by stimulating angiogenesis and neovascularization. In one study, nicotine administered to mice with tumors caused increases in tumor size (twofold increase), metastasis (nine-fold increase), and tumor recurrence (threefold increase). N-Nitrosornicotine (NNN), classified by the IARC as a Group 1 carcinogen, is produced endogenously from nitrite in saliva and nicotine."

(Davis R, Rizwani W, Banerjee S, et al. (2009). "Nicotine Promotes Tumor Growth and Metastasis in Mouse Models of Lung Cancer." In Pao, William. *PLoS ONE* 4 (10): e7524. Bibcode:2009PLoS...4.7524D. doi:10.1371/journal.pone.0007524. PMC 2759510. PMID 19841737.)

Now, we don't pretend to know specifically what all of that scientist shoptalk means. But we can all pretty much guess from this quote that nicotine — even unadulterated nicotine — is not good for humans.

## Summary

Smoking cigarettes, cigars, pipes and hookahs appear to cause more harm than smoke-free methods of ingesting nicotine. The smoke, whether inhaled or not, contains myriad cancer-causing agents. E-cigarettes also produce plenty of unpronounceable dangerous chemicals, which ARE inhaled. And, alas, even chew tobacco and snuff present dangers from oral contact with the unburnt tobacco.



Ultimately, no nicotine delivery system in existence can deliver nicotine over the long term without harm because the chemical itself is addictive and unsafe. But some nicotine delivery systems might be better than others. And some car wrecks are better than others. And some broken bones are better than others. And some cancers are better than others.

## References:

- Hecht SS (July 1999). "Tobacco Smoke Carcinogens And Lung Cancer." *Natl. Cancer Inst.* 91 (14): 1194–210. doi:10.1093/jnci/91.14.1194. PMID 10413421.
- Wu WK, Cho CH (April 2004). "The Pharmacological Actions of Nicotine on the Gastrointestinal Tract." *Pharmacol. Sci.* 94 (4): 348–58. doi:10.1254/jphs.94.348. PMID 15107574.
- Chowdhury P, Udupa KB (December 2006). "Nicotine as a Mitogenic Stimulus for Pancreatic Acinar Cell Proliferation." *World Gastroenterol.* 12 (46): 7428–32. PMID 17167829.
- Wong HP, Yu L, Lam EK, Tai EK, Wu WK, Cho CH (June 2007). "Nicotine Promotes Colon Tumor Growth and Angiogenesis Through Beta-Adrenergic Activation." *Toxicol. Sci.* 97 (2): 279–87. doi:10.1093/toxsci/kfm060. PMID 17369603.
- Natori T, Sata M, Washida M, Hirata Y, Nagai R, Makuuchi M (October 2003). "Nicotine Enhances Neovascularization and Promotes Tumor Growth." *Mol. Cells* 16 (2): 143–6. PMID 14651253.
- Ye YN, Liu ES, Shin VY, Wu WK, Luo JC, Cho CH (January 2004). "Nicotine Promoted Colon Cancer Growth via Epidermal Growth Factor Receptor, c-Src, and 5-Lipoxygenase-Mediated Signal Pathway." *Pharmacol. Exp. Ther.* 308 (1): 66–72. doi:10.1124/jpet.103.058321. PMID 14569062.
- Davis R, Rizwani W, Banerjee S, et al. (2009). "Nicotine Promotes Tumor Growth and Metastasis in Mouse Models of Lung Cancer." In Pao, William. *PLoS ONE* 4 (10): e7524. Bibcode:2009PLoSO...4.7524D. doi:10.1371/journal.pone.0007524. PMC 2759510. PMID 19841737.