



Independent, authoritative information on the treatment of tobacco dependence

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The main adverse effect of nicotine is addiction, which sustains tobacco use. Because most smokers are nicotine-dependent, they continue to expose themselves to toxicants from tobacco. Tobacco, not nicotine, is responsible for most of the adverse health effects.

Nicotine is a highly addictive drug, as addictive as heroin or cocaine when delivered by means of tobacco products (USDHHS, 1988). Nicotine is used by tobacco users to modulate mood and arousal, as well as for pleasure. Upon cessation of tobacco use, withdrawal symptoms develop, which are generally unpleasant and often disruptive to daily life. The addictive effect of nicotine (including conditioned reinforcement effects) sustains tobacco use. In the absence of nicotine, it is unlikely that sustained smoking behavior would be supported over the long-term. Conversely, nicotine-containing medications (termed nicotine replacement therapy) can be used instead of tobacco to aid quitting. The addiction risk of nicotine in medications has proved to be very low compared to the risk posed by tobacco products (USDHHS, 1998; Benowitz, 1998; Royal College of Physicians, 2008) probably because nicotine medications produce a slow onset of very low levels of nicotine. While people use tobacco for the effects of nicotine, they suffer adverse health consequences, mainly from damage caused by tar, oxidizing chemicals, carbon monoxide and other constituents of tobacco or tobacco smoke (Smith et al., 2003; Surgeon General's Report 2010).

In other words, it is the delivery system, not the addictive drug, which is responsible for the vast majority of tobacco-related disease. More detailed information on the effects of nicotine on cardiovascular disease and pregnancy are discussed in the commentaries on other key findings in the section.

[U.S. Department of Health and Human Services](#). The health consequences of smoking: Nicotine addiction. A report of the Surgeon General. U.S. Department of Health and Human Services, Public Health Services, Office on smoking and health. DHHS Publication No. (CDC) 88-8406, 1988.

[Benowitz NL](#). Summary: risks and benefits of nicotine. In Nicotine Safety and Toxicity, 1998; pp.185-195. Edited by Benowitz NL. New York (NY): Oxford University Press.

[Royal College of Physicians](#). Radical strategies for prevention and harm reduction in nicotine addiction. London: Royal College of Physicians; 2008.

[Benowitz NL](#). Cigarette smoking and cardiovascular disease: pathophysiology and implications for treatment. Prog Cardiovasc Dis. 2003; 46: 91-111.

[Smith CJ, Perfetti TA, Garg R, Hansch C](#). IARC carcinogens reported in cigarette mainstream smoke and their calculated log P values. Food Chem Toxicol. 2003; 41: 807-817.