

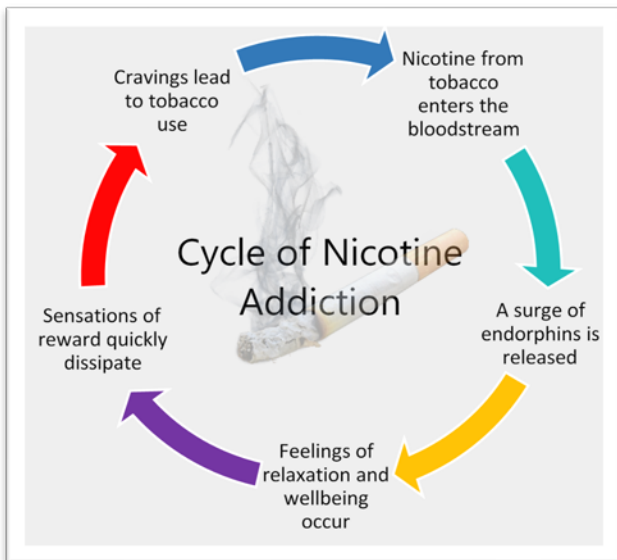
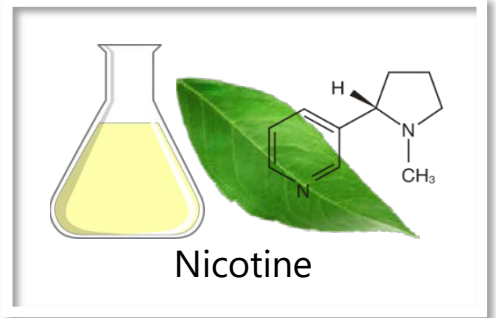
# Connecticut Department of Public Health Fact Sheet

## Tobacco Control Program | December 2022

### NICOTINE INFORMATION

#### What Is Nicotine...?

Nicotine is a highly addictive substance found naturally in tobacco plants and can be synthetically produced in laboratories. There is nicotine in all tobacco products, including cigarettes, cigars, shisha or hookah tobacco, heated tobacco products, smokeless tobacco (e.g., chewing tobacco, dip, snuff and snus), pipe tobacco and most vaping products (e.g., e-cigarettes, vape pens, mods, pods and tanks).<sup>1,2</sup>



#### Nicotine Effects:<sup>2</sup>

- Nicotine is quickly absorbed into the bloodstream from tobacco products
- Nicotine causes pleasure-inducing hormones called endorphins to be released, helping to relieve stress and pain and creating a sense of wellbeing
- Nicotine levels peak soon after entering the body and then decline rapidly along with the feel-good sensations
- Cravings for the “rewards” from nicotine develop once it is gone, possibly leading to a cycle of tobacco use

#### Nicotine Dependency:<sup>2</sup>

- Nicotine raises the level of dopamine, a neurotransmitter made in the brain that plays a role as a “reward system” and boosts a person’s need for nicotine
- Frequent use of nicotine alters the way the brain works in relation to behavior and learning
- Changes in brain function from nicotine can lead to addiction and withdrawal symptoms when a person is not using tobacco
- Some tobacco products are made to deliver nicotine to the brain within seconds, making it easier to become dependent and more difficult to quit



***The use of any tobacco product can lead to nicotine addiction because it changes the way the brain functions<sup>1</sup>***

## Nicotine Health Risks:

- Nicotine has been shown to cause widespread adverse effects on all systems of the body, including cardiovascular, respiratory, renal and reproductive<sup>3</sup>
- Studies have demonstrated nicotine's potential to cause cancer<sup>3</sup>



**Nicotine is found in all tobacco products**

- Nicotine fundamentally changes brain chemistry<sup>4</sup> and negatively affects brain development in children<sup>5</sup>
- Nicotine has been found in secondhand tobacco smoke and aerosol, along with many other harmful substances, which means that anyone who inhales smoke or aerosol is susceptible to the harmful effects of these chemicals<sup>4</sup>

## Nicotine in Vaping Products:

- A study done by the Centers for Disease Control and Prevention found that 99% of vaping products, also referred to as electronic nicotine delivery systems (ENDS), sold in stores contained nicotine<sup>6</sup>
- The amount of nicotine a person absorbs while vaping depends on the type of e-liquid used, the temperature of heating, and the depth of the puff the person takes<sup>7</sup>
- E-liquids continue to increase in nicotine potency - the average nicotine concentration in e-cigarettes sold by US retailers more than doubled between 2013 and 2018<sup>7</sup>



**E-liquids in vaping products have high concentrations of nicotine**

**Nicotine Withdrawal:** Quitting tobacco causes almost everyone to have symptoms of nicotine withdrawal. The feelings vary, but some of the most common are<sup>8</sup>...



- Urges or cravings to use tobacco
- Feeling irritated, grouchy or upset
- Feeling jumpy or restless
- Trouble concentrating
- Difficulty sleeping
- Feeling hungry or gaining weight
- Feeling anxious, sad or depressed



For More Information, Contact:

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Call: 860-509-8251 or visit: [www.ct.gov/DPH/Tobacco](http://www.ct.gov/DPH/Tobacco)



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## References:

- <sup>1</sup>Nicotine Is Why Tobacco Products Are Addictive. (2022, June 29). FDA fact sheet. [Nicotine Is Why Tobacco Products Are Addictive | FDA](#).
- <sup>2</sup>Wilson, Debra Rose. Ph.D., MSN, R.N., IBCLC, AHN-BC, CHT. (2022, July 28). Everything you need to know about nicotine. Medicaid News Today. <https://www.medicalnewstoday.com/articles/240820>.
- <sup>3</sup>Mishra A, Chaturvedi P, Datta S, Sinukumar S, Joshi P, Garg A. Harmful effects of nicotine. Indian J Med Paediatr Oncol. 2015 Jan-Mar;36(1):24-31. doi: 10.4103/0971-5851.151771. PMID: 25810571; PMCID: PMC4363846.
- <sup>4</sup>Nicotine Side Effects. Tobacco Free Life (TFL). <https://tobaccofreelife.org/why-quit-smoking/smoking-effects/nicotine-effects/> [accessed 6 Sep 2022].
- <sup>5</sup>Robert F Smith, Craig G McDonald, Hadley C Bergstrom,, Daniel G Ehlinger , Jennifer M Brielmaier. (2015, June 3). Adolescent nicotine induces persisting changes in development of neural connectivity. NIH National Library of Medicine. [Adolescent nicotine induces persisting changes in development of neural connectivity - PubMed \(nih.gov\)](#).
- <sup>6</sup>Marynak, et al. American Journal of Public Health. Sales of Nicotine-Containing Electronic Cigarette Products: United States, 2015. May 2017;107(5):702-705. doi: 10.2105/AJPH.2017.303660.
- <sup>7</sup>Nicotine content in e-cigarettes more than doubled in 5 years. (2019, August 8). Truth Initiative fact sheet. [Nicotine content in e-cigarettes has more than doubled in 5 years \(truthinitiative.org\)](#).
- <sup>8</sup>Common Withdrawal Symptoms and What You Can Do About Them. (2022, Sep 22). [Smokefree.gov](#). Office on Smoking and Health. National Center for Chronic Disease Prevention and Health Promotion. Centers for Disease Control and Prevention.