

Debunking Myths: What Science Actually Says About Vaping

In the decade since vaping entered the mainstream, it has been the subject of intense media scrutiny, often resulting in sensationalist headlines that obscure the underlying science. For smokers considering a switch, the "infodemic" of conflicting reports can be paralyzing. However, when we look at peer-reviewed research and reports from leading health organizations, a much clearer picture emerges—one that separates myth from clinical reality.

Myth 1: "Vaping is just as harmful as smoking."

This is perhaps the most pervasive misconception. Because both habits involve inhaling a substance into the lungs, many assume the risks are identical.

The Science: Traditional cigarettes burn tobacco at high temperatures, creating tar and carbon monoxide. Vaping involves no combustion. **Public Health England** and the **Royal College of Physicians** have consistently maintained that vaping is at least 95% less harmful than smoking. While "less harmful" does not mean "perfectly safe," the reduction in toxin exposure is massive. A study published in the **Journal of the American College of Cardiology** found that smokers who switched to e-cigarettes demonstrated a significant improvement in vascular health within just one month.

Myth 2: "Vaping causes 'Popcorn Lung'."

The term "popcorn lung" (bronchiolitis obliterans) became linked to vaping due to diacetyl, a chemical used in some early e-liquid flavorings to create a buttery taste.

The Science: While diacetyl was found in some e-liquids years ago, it has been largely removed from the market by reputable manufacturers. More importantly, even in e-liquids that contained it, the levels were hundreds of times lower than those found in traditional cigarette smoke. According to **Cancer Research UK**, there have been no confirmed cases of popcorn lung in people who use e-cigarettes.

Myth 3: "Vaping doesn't actually help people quit smoking."

Critics often claim that vapers simply become "dual users," continuing to smoke while also vaping, or that vaping is no more effective than going "cold turkey."

The Science: The evidence for vaping as a cessation tool is now considered "high-certainty" by the **Cochrane Review**, the gold standard of evidence-based medicine. Their 2022 update confirmed that nicotine e-cigarettes are more effective at helping people quit than traditional nicotine replacement therapies (NRT) like patches or

gum. Furthermore, a major clinical trial in **The New England Journal of Medicine** showed that e-cigarettes were nearly twice as effective as NRT in achieving long-term abstinence from smoking.

Myth 4: "The aerosol is just 'water vapor,' or it's 'full of antifreeze'."

Both extremes are incorrect. Some proponents claim it's "just water," while critics claim e-liquid contains toxic antifreeze (propylene glycol).

The Science: E-liquid is primarily composed of Propylene Glycol (PG) and Vegetable Glycerin (VG). While PG is used in some types of antifreeze to make them *non-toxic* for pets, it is a food-grade substance "generally recognized as safe" (GRAS) by the **FDA** for ingestion and is used in asthma inhalers for inhalation. The "vapor" is actually an aerosol containing nicotine and flavorings. While it is not merely water, the **National Academies of Sciences, Engineering, and Medicine** concluded that second-hand exposure to vaping aerosol is significantly lower in toxins compared to second-hand tobacco smoke.

Conclusion

Scientific literacy is essential in the age of digital misinformation. While the long-term effects of vaping (over 30-40 years) are still being studied, the current body of evidence is clear: for adult smokers, switching to vaping represents a substantial reduction in health risks. By following the data rather than the headlines, smokers can make informed choices about their wellness journeys.

Citations & References

- **McNeill, A., et al.** (2022). *Nicotine vaping in England: 2022 evidence update summary*. Office for Health Improvement and Disparities (OHID).
- **Hajek, P., et al.** (2019). "A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy." *The New England Journal of Medicine*, 380:629-637. DOI: 10.1056/NEJMoA1808779.
- **George, J., et al.** (2019). "Cardiovascular Effects of Switching From Tobacco Cigarettes to Electronic Cigarettes." *Journal of the American College of Cardiology*, 74 (25) 3112–3120.
- **Hartmann-Boyce, J., et al.** (2022). "Electronic cigarettes for smoking cessation." *Cochrane Database of Systematic Reviews*. DOI: 10.1002/14651858.CD010216.pub7.
- **Cancer Research UK.** (2021). *Does vaping cause popcorn lung?* [Online Resource].
- *National Academies of Sciences, Engineering, and Medicine.* (2018). *Public Health Consequences of E-Cigarettes*. Washington, DC: The National Academies Press.

The **Tennessee Smoke Free Association (TSFA)** is an advocacy group and trade organization with a focus on Tobacco Harm Reduction (THR) through the use of personal vaporizers (electronic cigarettes) and other smokeless tobacco products shown to reduce the morbidity and mortality associated with smoking. The TSFA was formed in 2014 to provide support and education regarding alternative methods of Tobacco Harm Reduction. We focus on the prevention of tobacco harm and seek to cooperate with the Tennessee Health Agencies to function for the greater health of the Tennessee public as well as monitor the legislation for or against our movement of tobacco harm reduction. You can learn more by visiting TNSmokeFree.org.