
Dear Alice,

Can you tell me about electronic cigarettes and their effects on health? Pros and cons, and a comparison to actual cigarettes? How do they compare to the patch and gum for someone who wants to quit smoking?

— E-Cig

**Answer**

Dear E-Cig,

E-cigarettes, or e-cigs, are a member of a family of products known as electronic nicotine delivery systems (ENDS). Although some studies have shown that they can transmit fewer toxins than traditional cigarettes, e-cigs aren't without health risks, which can include serious lung illness and death [2]. While some users attest to e-cigs' power in weaning them off of traditional cigarettes and helping them nix their nicotine addiction, there’s currently no definitive evidence that e-cigarettes are effective cessation tools. The science is currently inconclusive on whether these devices are more or less effective in aiding cessation than nicotine replacement therapy (NRT) products such as gum and the patch, and using e-cigs for this purpose isn't approved by the Food and Drug Administration (FDA). Though much research still needs to be done, current results support the use of a combination of methods — NRT products, counseling and social support, and individualized cessation plans — for the best chance of quitting.

E-cigarettes are small, battery-powered vaporizers; thus, you may have heard the term "vaping" to describe their use. Some versions of e-cigs are designed in size, shape, and color to resemble traditional cigarettes, while others are the same general shape and size but try to appear visually different (such as a Juul). The act of inhaling triggers a sensor that causes a tiny heating element to heat up the nicotine-containing cartridge inside, creating a vapor. E-cigs come in varying levels of nicotine and some come without it. In recent years, the FDA began regulating the manufacturing of ENDS products and their counterparts, such as the e-cig and its e-liquid cartridges. While e-cigarettes were, at one point, only available for purchase online, they’re now widely available at pharmacies and retail stores. The minimum age to purchase these products can range from 18 to 21, depending on the location, but there may be more restrictions in the
future. Some cities and states are trying to ban any flavored e-cigarette products, while others are trying to ban all e-cigarette products entirely in efforts to make them less accessible and appealing to young adults.

E-cigarettes have gained attention in the last decade as their potential to be a harm reduction tool for nicotine addiction has been investigated. Although switching to e-cigs may reduce the harm caused by traditional cigarettes, e-cigs aren’t without damaging side effects, some of which are fatal. These devices deliver nicotine directly to the lungs. This is unlike the patch or nicotine gum, where the nicotine is absorbed via the skin or mouth. Recent studies have found that e-cig vapor with and without nicotine, causes an increase in cell death, particularly to the cells inside the mouth, esophagus, and other parts of the body, all of which are harmful to the user. Aside from the negative side effects of electronic cigarette vapor, nicotine itself is addictive and toxic to humans. Extended exposure to nicotine may potentially lead to nicotine poisoning [3] (an intake of too much nicotine), which may result in side effects such as headache, vomiting, cramps, confusion, depression, and coma. In fact, as of 2018, all new ENDS products that contain nicotine must have a warning label alerting consumers that nicotine is an addictive chemical. Another factor to consider is that the liquid in electronic cigarettes typically contains varying compositions of propylene glycol (PG), vegetable glycerin (VG), and flavorings. The devices themselves may also cause injury, as fires and explosions have resulted from malfunctioning batteries.

In addition, e-cigarette use has been associated with severe lung illness, which in some cases, resulted in death. Some of the symptoms associated with this illness include cough, nausea, fatigue, chest pain, vomiting, and fever. The illness is likely associated with a chemical in the vape pens, but further research needs to be conducted to identify the exact cause. Due to this, Centers for Disease Control and Prevention (CDC) recommends not using e-cigarette products [4] for any purpose and to seek care from a health care provider quickly for those experiencing any of the symptoms associated with e-cigarette use.

Are e-cigs considered a smoking cessation aid? Not currently. Research on this topic is still in progress; the few studies that have been done have garnered mixed results due the variety of factors involved in quitting smoking. NRT is one major category of smoking cessation products that includes nicotine patches, gums, lozenges, and nasal sprays. These products are designed to wean the body off of cigarettes and supply it with nicotine in controlled amounts, while sparing the smoker from other chemicals found in tobacco products. A grouping of NRT products — combining nicotine patch (slow release) with nicotine gum, lozenge, inhaler, or nasal spray (rapid release) — has been shown to be more effective than using just one NRT product. Studies have found these methods to be even more effective when combined with counseling, behavioral treatments such as quitting support hotlines, and individualized quit plans. When comparing the effectiveness of e-cigarettes to NRT products as methods of cessation, studies have garnered mixed results; some found that e-cigs were more helpful in quitting smoking, while other studies did not. That being said, given the risks of serious injury and death associated with their use, the CDC recommends that those looking to quit smoking use treatments that have been approved by the FDA, and for those struggling to quit, to reach out to a health care provider.

Overall, avoiding both traditional and e-cigarettes is recommended, as each presents its own health risks. Gums, patches, and other NRTs are currently recognized as effective cessation
aids, and have been identified as a lower-risk option than an e-cig. No matter how it’s done though, quitting smoking has immense health benefits. If you’re considering whether to kick (cigarette) butt in the near future, Smokefree.gov has a number of resources on quitting. You can also check out the Go Ask Alice! Cigarettes, Chewing Tobacco, & Other Nicotine archives for more information on cigarettes, nicotine, and health.

Here’s to happy lungs,

Alice!

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Alcohol & Other Drugs
Cigarettes, Chewing Tobacco, & Other Nicotine

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