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# Hopes for Smoke-Free Generation Dwindling: 40% of Young Adults Smoke or Vape

Analysis by Dr. Joseph Mercola | November 11, 2026

## STORY AT-A-GLANCE

- Forty percent of Dutch young adults ages 18 to 29 smoke or vape, showing how far younger generations remain from the goal of eliminating nicotine use
- Social media use is linked to nicotine use among young adults, with 75% seeing smoking or vaping videos and one-third of those exposed reporting that the content tempted them to try it
- Vaping and smoking frequently overlap, with young people who start vaping three times more likely to start smoking and 70% of monthly vapers also reporting cigarette use
- Vaping was linked to altered gene activity in mouth cells, with disrupted pathways tied to cancer and cell signaling, while device type and flavor were each linked to distinct biological changes
- Building healthy habits, exercising regularly, limiting social media exposure and identifying nicotine triggers helps create a stronger foundation for quitting rather than switching to another vaping product or cigarette

If you assumed vaping was a fading trend among younger generations, new research says otherwise. Forty percent of Dutch young adults ages 18 to 29 now smoke or vape, a figure that puts the goal of a smoke-free generation further away than ever.[1] Vaping has reshaped nicotine use, replacing the familiar cigarette with sleek devices, flavored liquids and a culture that thrives on social media.

E-cigarettes are often promoted as a less harmful alternative to conventional cigarettes. Instead of burning tobacco, these devices heat a liquid into an aerosol that you inhale. Yet avoiding tobacco smoke doesn't mean your tissues escape biological effects, and the long-term consequences of repeated exposure remain an important concern.

A study in Frontiers in Oncology adds a biological dimension to the picture.[2] Researchers examined oral epithelial cells — the cells lining the mouth and among the first to contact inhaled vape aerosol — from 83 participants (35 vapers, 24 cigarette smokers and 24 people who used neither product) to determine how vaping relates to changes in gene activity. They also investigated whether the amount used, device type and e-liquid flavor made a difference.

These findings make the growing popularity of vaping among young people more than a question of changing habits. Before looking at what happens inside exposed cells, it's important to understand just how firmly smoking and vaping have taken hold among young adults and what appears to be encouraging their use. The prevalence data tells you how widespread the exposure is. The gene-expression findings tell you what that exposure is doing inside the body, even in people who appear perfectly healthy.

## Vaping Is Undermining Efforts to Create a Smoke-Free Generation

Research by Independer, reported by NL Times, surveyed 2,000 people in the Netherlands and found that 40% of young adults ages 18 to 29 smoke or vape.[3] That puts this age group at the center of the country's struggle to create a smoke-free generation. For parents, the finding also shows why conversations about nicotine need to include vaping rather than focusing solely on conventional cigarettes.

The age pattern becomes even clearer when you compare generations. Smoking prevalence drops to 30% among people in their 30s, 17% among those over 45 and just 10% among adults 60 and older. The youngest adult group stands apart at the very time when public health efforts are trying to prevent nicotine use from taking hold.

- **The 2040 smoke-free target is slipping further out of reach —** The Dutch National Prevention Agreement set an ambitious goal: By 2040, no young person would smoke or vape, while smoking and vaping among adults would fall to just 5%. Current behavior among young adults is nowhere close to that benchmark.

  The 2040 goal depends on preventing younger generations from establishing these habits in the first place. NL Times described the prospect of achieving a smoke-free generation as "further away than ever."[4]

- **Social media puts smoking and vaping directly in front of young people —** About 75% of young adults surveyed watch videos featuring people who smoke or vape. Among those exposed to this content, one-third said it tempted them to start smoking or vaping themselves. That finding connects what young people repeatedly see on a screen with their own reported desire to try these products.

  Repeated exposure matters from a practical standpoint because smoking and vaping no longer need to appear in a conventional advertisement to influence behavior. A video, post or social-media personality provides repeated visual cues that make the behavior look familiar. If you have teenagers or young adults in your family, paying attention to the nicotine-related content appearing in their feeds gives you another place to start a meaningful conversation.

- **Social media also provides a route to buying cigarettes and vapes —** More than one-quarter of the young adults exposed to smoking and vaping content also purchase cigarettes or vapes through social media, despite such sales being banned in the Netherlands since July 2023. Social platforms therefore aren't simply places where young people encounter the behavior; they also serve as a reported purchasing channel.

  That combination reduces the distance between seeing a product and obtaining it. Instead of separating exposure, temptation and access into different environments, social media places all three within the same digital space. Recognizing that

pathway gives parents another practical target: Don't limit nicotine discussions to peer pressure at school or in social settings. Online access deserves attention too.

- **Vaping and cigarette smoking frequently overlap —** Pediatric pulmonologist Noor Rikkers warned that an even younger group is already vaping. She told NL Times, "Once you start vaping, you are three times more likely to start smoking."[5] That challenges the idea that vaping among young people necessarily remains separate from cigarette use. Rikkers added that 70% of young people who vaped once a month had also smoked a cigarette.

- **Preventing the first steps toward nicotine use matters —** The findings point to a chain that's worth recognizing: Young people repeatedly encounter smoking and vaping online, some report feeling tempted to try them, and a sizable group uses the same platforms to obtain the products. Vaping also overlaps substantially with cigarette use among young people, according to Rikkers.

  For you, that means prevention doesn't have to begin after regular nicotine use develops. Earlier opportunities exist — reducing normalization, discussing what appears in social feeds and recognizing vaping as part of the tobacco-use picture rather than a harmless alternative. The next question is what repeated vape exposure does inside the tissues that come into direct contact with the aerosol.

## Vaping Is Linked to Gene Activity Changes That Dose Alone Can't Explain

A study published in Frontiers in Oncology used RNA sequencing to compare oral cells from healthy adult vapers, cigarette smokers and people who used neither product.[6] RNA sequencing shows researchers which genes are more or less active inside cells. The researchers examined several measures of vaping exposure, including total e-liquid and nicotine consumed, years of vaping and blood levels of cotinine, a substance your body produces when it breaks down nicotine.

Both vaping and smoking were associated with substantial changes in gene activity compared with non-use, and some of the affected genes overlapped between the two groups. This matters because genes direct many of the day-to-day processes that keep your cells functioning normally. Changes in their activity provide an early look at how repeated exposure affects cellular biology, even in otherwise healthy adults. Several findings stood out, each adding a layer of complexity to what vaping does at the cellular level.

- **Vaping was linked to changes in pathways tied to cancer and cell communication —** Researchers found disruption in several biological pathways shared by vapers and smokers, including pathways associated with cancer and cellular signaling. One example was the RHO GTPase Cycle, a signaling system that helps cells maintain their shape, move properly and divide in an orderly way.

  When this system is disrupted, cells lose some of the internal controls that keep growth organized, which is why researchers pay attention when it shows up in cancer-pathway analyses.

  These findings don't prove that vaping causes cancer; the study measured molecular shifts, not disease outcomes. Still, identifying disruption within cancer-related pathways gives researchers a reason to examine what repeated vaping exposure does over longer periods.

- **Vaping produced a less predictable dose-response pattern than smoking —** Among vapers, only 27.6% of the differentially expressed genes — genes whose activity differed from non-users — changed consistently across all four measures of vaping dose. The remaining genes showed more varied patterns depending on how exposure was measured.

  Smoking produced a more uniform picture. Among genes associated with cigarette use, 54.1% were consistently affected across the smoking dose measures.

- **The device itself contributed to differences in gene activity —** Device generation explained additional gene-expression differences that weren't simply duplicates of the changes associated with vaping dose. E-cigarette technology has evolved substantially, with later-generation products designed to deliver aerosol and nicotine differently than early "cigalike" devices.

  Researchers found no differentially expressed genes in the first- or second-generation device models, but they cautioned that these groups contained few participants. Fourth-generation devices weren't represented because they had only recently emerged when participants were recruited. That limitation matters when you interpret the findings: Today's vaping products continue to change, so results from one generation of devices don't automatically describe every product on the market.

- **Flavor was another major source of biological variation —** The researchers found no single set of altered genes shared across every e-liquid flavor category. Instead, 66.6% of the primary vaping-related genes showed significant changes in at least one flavor category but not all of them. This indicates that flavor formulation adds another layer to the cellular response.

  The number of affected genes varied sharply by flavor category, though these differences likely reflect sample size and usage patterns rather than a ranking of biological harm. Of the 3,124 primary genes identified as differentially expressed in vapers, 92 were significant in the sweet-flavor model, 970 in the fruit model, 27 in the mint or menthol model and 2,009 among people who used multiple flavors.

  Those numbers don't establish that one flavor is safer or more harmful than another, but they do show why treating all flavored vaping products as biologically identical oversimplifies the exposure.

- **Vaping exposure involves more than nicotine alone —** Taken together, the findings show that the biological effects associated with vaping reflect several dimensions at once: how much you vape, how long you've vaped, the device you use and the

formulation you inhale. Dose mattered, but it didn't explain the entire pattern of gene disruption.

That distinction is especially important when vaping is discussed as though nicotine concentration alone defines the risk. Research on e-cigarette aerosol composition indicates it can contain a mix of reactive chemicals, volatile compounds and trace metals, some of which also appear in tobacco smoke, generally at lower concentrations. Your cells encounter the complete aerosol mixture, which helps explain why evaluating vaping requires looking beyond nicotine dose alone.

## How to Break the Nicotine Cycle Before It Takes Hold

The most effective protection is to stop the exposure. But if you smoke or vape regularly, don't focus only on taking something away. Build up your health and daily routine at the same time. Better food, regular movement, adequate sleep and healthier ways to handle stress give you a stronger foundation for breaking a nicotine habit and staying free of it. Whether you use nicotine yourself or want to help someone younger who does, the following steps apply.

1. **Focus on building a healthier foundation —** If you smoke or vape, start improving your health habits as you prepare to quit. Eat nourishing whole foods, prioritize adequate sleep and establish a predictable daily routine. Small, consistent changes matter more than an overnight overhaul. Pick a few habits you control and practice them consistently so quitting nicotine becomes part of a broader move toward better health rather than an isolated act of deprivation.

2. **Use exercise to reduce cravings and make quitting easier** — If you smoke, regular exercise does more than give you something else to do when an urge hits. A 2026 systematic review and meta-analysis of 59 randomized controlled trials found that exercise training increased continuous smoking abstinence by 15% and seven-day abstinence by 21%.[7] A single bout of exercise also reduced acute cigarette cravings immediately afterward and for up to 30 minutes.

Start with daily walking and work toward as much as 60 minutes throughout your day, depending on your current fitness level. I also recommend strength training twice a week and brief movement breaks during long periods of sitting. When a craving strikes, even a short period of physical activity gives you something constructive to do until the urge subsides. Keep in mind that the review examined smoking cessation; none of the included trials specifically tested vaping cessation.

3. **Spend less time on social media —** If smoking and vaping constantly appear in your feed, unfollow those accounts and reduce similar recommendations, but go further. Set limits on your total social media time, take regular breaks and replace scrolling with offline activities such as walking, reading or spending time with people face to face.

   Three-quarters of young adults in the Dutch survey watched smoking or vaping videos, and one-third of those exposed said the content tempted them to start.[8] Less time immersed in these feeds means fewer opportunities for nicotine use to become normalized through repetition.

4. **Identify and change your nicotine triggers —** If you automatically vape while driving, after meals, during work breaks or when you feel stressed, map those situations as you quit. Then assign each trigger a replacement behavior. Take a short walk after eating, keep mints nearby while driving or use a movement break when stress rises. Removing vapes, cigarettes and supplies from your home, car and bag also adds useful friction between an urge and the behavior you're trying to leave behind.

5. **Quit the exposure instead of searching for a safer version —** If sweet, fruit or mint flavors make vaping seem less concerning, remember that flavor and device type were both associated with differences in gene activity among vapers.[9] The study didn't establish that one flavor or device was safer than another. My recommendation is to make your end goal freedom from both vaping and smoking, rather than switching products, flavors or nicotine doses while continuing to inhale the aerosol.

# FAQs About Vaping in Young Adults

**Q: Why is vaping among young adults a growing concern?**

**A:** Smoking and vaping remain widespread among young adults even as public health efforts aim to create a smoke-free generation. Social media adds to the problem by repeatedly exposing young people to nicotine use and providing another avenue for accessing these products.

**Q: Does vaping make young people more likely to smoke cigarettes?**

**A:** The two behaviors frequently overlap. Pediatric pulmonologist Noor Rikkers reported that people who start vaping are three times more likely to start smoking, and 70% of young people who vaped monthly had also smoked a cigarette.

**Q: What does vaping do to cells in my mouth?**

**A:** Researchers found substantial differences in gene activity in oral cells from vapers compared with non-users, including disruption of pathways involved in cancer and cellular signaling. These molecular changes don't prove that vaping causes cancer, but they show that vape aerosol produces measurable biological effects in exposed cells.

**Q: Are some vaping devices or flavors safer than others?**

**A:** The research doesn't establish any particular device or flavor as safer. Device generation and flavor were associated with different patterns of gene activity, which means nicotine concentration alone doesn't capture the full biological exposure from vaping.

**Q: What steps help me quit smoking or vaping?**

**A:** Start by strengthening your overall health with nutritious whole foods, adequate sleep and regular movement, then identify the situations that trigger nicotine use and replace them with healthier behaviors. Exercise is particularly useful for smoking cessation: Research found that it reduces acute cigarette cravings and improves quitting success.

Limiting social media exposure and removing cigarettes, vapes and supplies from your environment also helps break the cues that reinforce nicotine use.

*This article is for informational purposes only and does not constitute medical advice. Consult a qualified healthcare provider before making changes to your health regimen.*

## Sources and References


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- [2, 6, 9] Frontiers in Oncology May 31, 2026
- [7] J Sport Health Sci. 2026 Apr 7:15:101138