

Vaping: From 'safe alternative' to a new nicotine epidemic

One session delivers 20 times more nicotine than cigarette, with heavy toll on lungs, heart, brain

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It started as a 'healthy' alternative to smoking in the early 2000s. But electronic cigarettes or vapes have become a bridge back to the very habit smokers were trying to quit, also morphing into a trendy Gen Z lifestyle accessory. But behind the sleek devices, bright colours and sweet fragrances lies a modern nicotine epidemic.

"Despite India's statutory ban, e-cigarettes have become a dangerous party fashion," says Dr G C Khilnani, former head of pulmonology at AIIMS Delhi, and a key architect of the Prohibition of Electronic Cigarettes Act 2019. "These pocket-sized devices are easily concealed, so youngsters use them to bypass public smoking bans, misled by chemical flavourings that only add to the product's toxicity."

Debunking a common misconception that vapes produce harmless water vapour, Dr Khilnani points out that e-cigarettes allow users to inhale a nicotine dose worth 20 cigarettes in a single session. He recalls a 40-year-old female patient who arrived with severe breathlessness, her lungs entirely devastated by vape-induced inflammation that required aggressive high-dose steroid therapy to stabilise.

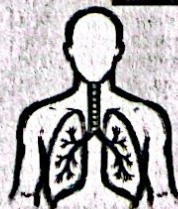
Young, elite, and vaping

A couple of months ago, Rajasthan Royals captain Riyan Parag was caught vaping in the team dressing room during an IPL match. Soon after, a viral video had fellow cricketer Yuzvendra Chahal appearing to vape inside a team flight. While Parag was slapped with a hefty fine, there's still debate on whether Chahal was vaping or merely pranking Parag's action with a spray device. Prank or not, the toxic reality of vaping is slowly unravelling, with recent studies linking it to "popcorn lungs", cardiovascular emergencies and even cancer.

"Our cardiovascular system's primary function is to remain a clean conduit for blood supply without clot formation. Vaping directly disrupts this mechanism," warns Dr Devi Shetty, cardiac surgeon and founder of Narayana Health, Bengaluru. High



HOW VAPING AFFECTS THE BODY



Lungs: Inhaling heavy metals from heated e-liquids causes acute lung irritation, inflammation, higher odds of asthma. Inhaling flavouring chemicals such as diacetyl (also used for rich butter flavour in popcorn) causes bronchiolitis obliterans, an obstructive lung disease also known as 'popcorn lung' where permanent scar tissue blocks bronchioles, needing steroid therapies



Heart, blood vessels: Spikes heart rate, BP, damages blood vessels to raise heart attack, stroke risks



Brain: Permanently alters brain growth related to attention, learning, mood, impulse control in teens



Cell, immune function: Weakens lungs' immune response, raising risk of pneumonia, bronchitis



Oral health: Dries out mouth, traps bacteria in teeth, gums, alters oral microbiome, raising cavity, gum inflammation risks

nicotine concentrations cause coronary arteries to lose tone and get abnormally distended, while altering blood clotting behaviour to make users highly vulnerable to thrombosis, heart attacks or strokes, he explains. Vaping also weakens heart muscle, inducing electrical instability that can trigger sudden cardiac arrest.

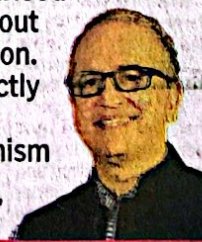
World Health Organisation and Centers for Disease Control and Prevention (CDC) have flagged how, when flavour liquids are superheated, the inhaled cloud is a chemically volatile aerosol with carcinogens and industrial toxins like formaldehyde, benzene, and acrolein. It also carries toxic heavy metals (lead, nickel, chromium) shed from the device's heating coils, alongside diacetyl, a buttery flavour compound linked to "popcorn lung" (bronchiolitis obliterans) which destroys the lungs' tiniest airways.

While long-term epidemiological data will take decades to mature — mirroring the decades it took then US Surgeon General to link smoking to lung cancer in 1964 — animal experi-

ments already point to cancer. A 2026 review by Australian scientists, out in Carcinogenesis, monitored exposure biomarkers and concluded, "Nico-

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tine-based e-cigarettes are likely to be carcinogenic, causing an indeterminate burden of oral and lung cancer.”

Toxins, in bubblegum flavour

Vaping among adolescents is heavily driven by flavour profiles. Over 16,000

flavours (mango, bubblegum, and cotton candy among others) are designed to mask the bitter nicotine taste and entice first-time users. Besides, e-cigarettes are highly discreet, and mimic everyday items like smart watches and key chains, allowing teenagers to vape undetected. An alarming 1 in 5 youth across the world have now tried vaping. Globally, immense regulatory gaps remain: 88 countries have no minimum legal age to buy e-cigarettes, 74 lack regulatory frameworks, and only four have banned youth-appealing flavours. In India, despite the ban, black-market networks, informal local sellers, and online platforms normalise e-cigarettes in elite spaces and continue to feed nicotine dependency to a new generation.

Clinics are already beginning to see the multi-pronged impact of this. A 2025 umbrella review published in BMJ Open culled data from 69 systematic reviews to show early nicotine exposure permanently alters developing young brains, impairing memory, attention span, and impulse control. Beyond asthma, vaping causes E-cigarette or Vaping Product Use-Associated Lung Injury (EVALI). A 2019 CDC study tracking EVALI patients found that 2.7% required rapid re-hospitalisation, and a small subset died shortly after discharge. The review also confirmed immediate cardiovascular stress, including blood pressure spikes, platelet activation, and endothelial dysfunction, alongside heightened depression and anxiety.

Gateway to smoking

Vaping can be a training ground for smoking, too. A separate umbrella review of the BMJ Open reviews showed that youth who vape are nearly three times more likely to start smoking. For ones who have quit, picking up a vape doubles the risk of a smoking relapse. "This supports the Gateway Hypothesis (or gateway drug effect) by proving that e-cigarettes hook users on nicotine rather than just attracting naturally risk-prone folk," says study author Dr Sonu Goel, president of Resource Centre for Tobacco Control.

Radiologists can instantly identify a vaper's lungs on a CT scan by the damage left where concentrated nicotine repeatedly hits lung walls, says Dr Shetty. "So, if you say, 'I stopped vaping for 4-5 years, so all the damage will be fixed', it won't. It invariably damages the lungs beyond repair."