Do electronic cigarettes create thirdhand smoke?

Thirdhand smoke is the chemical residue left behind by secondhand smoke that lingers for months in dust, on household surfaces, and can become embedded in carpets, furniture, fabrics, and building materials.

Electronic cigarettes, or e-cigarettes, do not burn plant materials like tobacco or marijuana. Instead, e-cigarettes heat a fluid that contains a mixture of chemicals. The mixture often includes nicotine that is produced from tobacco leaves. This heated fluid creates an aerosol vapor that looks like cigarette smoke. Users of e-cigarettes exhale large amounts of vapor that mixes with air and settles on indoor surfaces, much like thirdhand smoke from burning tobacco or marijuana. Research has found nicotine residue on glass and cotton materials 72 hours after vaping had stopped. From research about thirdhand smoke from tobacco products, we know that nicotine deposited on household surfaces reacts with oxidants to produce novel carcinogenic compounds called tobacco specific nitrosamines. Further research about the behavior of thirdhand residue from e-cigarettes is needed.

Research has shown that exposure to toxic second and thirdhand smoke from e-cigarettes increases in places where vaping is allowed. And the air quality in places like vape shops is low. In-home bans of electronic cigarettes or vapes, prevents the buildup of toxic aerosol residue.

Sources

Goniewicz ML, Lee L. Electronic cigarettes are a source of thirdhand exposure to nicotine. Nicotine Tob Res. 2015; 17(2):256-258. Published online 2014 August 30.


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