

THIRDHAND SMOKE Resource Center

If someone smokes outside, do they bring thirdhand smoke with them when they enter a home or car?

Thirdhand smoke is the chemical residue from tobacco smoke. It is also called “tobacco smoke residue” or “stale tobacco smoke.” The chemicals in thirdhand smoke are toxic to humans, especially children. It can linger for years in dust and on household surfaces. It can also become embedded in carpets, furniture, clothes, and building materials. It is difficult and expensive to remove.

When someone who smokes outside enters a car or home, they bring thirdhand smoke with them. Often, they will smell like tobacco smoke. But even if they don't, thirdhand smoke is still carried on their clothes, skin, hair, and even in the breath they exhale. We smell tobacco smoke when the thirdhand smoke chemicals are released into the air, a process known as off-gassing. Some of these chemicals in the air are recognized by the odor receptors in our noses, and our brains tells us that this is the unpleasant smell of stale tobacco smoke.

Once this tobacco residue is brought inside, the effects are similar to when someone smokes a cigarette inside the car or home. The gases and particles in the tobacco residue on the smoker's hands, clothes, skin, and hair can be transferred, stick to, and ultimately become embedded in materials and objects. In your home, these include carpets, walls, furniture, blankets, and toys. In your car, these include the seat covers, steering wheel, floor mats, and ceiling liner. The gases and particles can also be released into the air and accumulate in dust. As a result, people and pets may be exposed to toxic thirdhand smoke, even though no cigarettes were smoked inside your car or home.

To keep toxic tobacco residue out of your home, tell family members and friends about thirdhand smoke and help them adopt these strategies:

1. Remove clothes worn while smoking before entering the home. Leave them outside on a porch or patio until they can be washed.
2. Wash clothes worn while smoking every day to avoid release of toxic compounds into the air.



3. Always wash your hands and face very carefully after smoking
4. Whenever possible, shower immediately upon entering the home after smoking to remove tobacco smoke residue from hair and skin. If showering is not possible, thoroughly wash hands and face.

To protect your health and the health of passengers in your car, ask someone who recently smoked to adopt these strategies before getting into your car:

1. Wash their hands and face to remove tobacco residue from their skin.
2. Change into a clean shirt.

Be sure to thank them for helping to protect you and your loved ones from toxic thirdhand smoke.

Updated: September 2022



Sources

Fortmann A L, Romero RA, Sklar RA, Pham V, Zakarian J, Quintana JP, Chatfield D, Matt GE. Residual tobacco smoke in used cars: futile efforts and persistent pollutants. *Nicotine Tob Res.* 2010;12(10):1029-36.

Licina D, Morrison GC, Bekö G, Weshler CJ, Nazaroff W. Clothing-mediated exposures to chemicals and particles. *Environ. Sci. Technol.* 2019; 53(10):5559-5575

Matt G E, Romero R, Ma DS, Quintana JP, Hovell MF, Donohue M, Messer K, Salem S, Aguilar M, Boland J, Cullimore J, Crane M, Junker J, Tassainario P, Timmermann V, Wong K, Chatfield D. Tobacco use and asking prices of used cars: Prevalence, costs, and new opportunities for changing smoking behavior. *Tob Induc Dis.* 2008; Jul 31; 4(1):2. doi: 10.1186/1617-9625-4-2.

Matt GE, Quintana PJ, Hovell MF, Chatfield D, Ma DS, Romero R, Uribe A. Residual tobacco smoke pollution in used cars for sale: air, dust, and surfaces. *Nicotine Tob Res.* 2008;10(9):1467-75. doi: 10.1080/14622200802279898.

Matt GE, Quintana PJ, Zakarian JM, Fortmann AL, Chatfield DA, Hoh E, Uribe AM, Hovell MF. When smokers move out and non-smokers move in: Residential thirdhand smoke pollution and exposure. *Tob Control.* 2011; 20(1):e1.

