

Is your gas stove making you sick? Experts weigh in

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Natural gas stoves have become the latest flashpoint in America's

increasingly volatile political culture, after a top federal regulator publicly mulled over banning the appliances.

"This is a hidden hazard," the U.S. Consumer Product Safety Commission (CPSC) commissioner, Richard Trumka Jr., said in an interview. "Any option is on the table. Products that can't be made safe can be banned."

Trumka quickly walked back that statement, saying that the agency wants to assess the hazards posed by indoor gas [stove](#) emissions but has no plans to ban [gas stoves](#).

But the question now is on the front burner—to what extent do gas stoves pose a health hazard to the average American?

A growing body of evidence shows that gas stoves do indeed emit a wide variety of harmful pollutants into a home's air, including [nitrogen dioxide](#), [carbon monoxide](#), benzene, formaldehyde, and even the sort of particulate matter that contributes to smog, experts say.

"All of those are known to have [negative impacts](#) on [human health](#)," said Dr. MeiLan Han, chief of pulmonary and critical care at the University of Michigan in Ann Arbor.

Some of these pollutants are emitted through microscopic leaks that occur even when a stove is off, said Eric Lebel, a senior scientist with PSE Healthy Energy in Oakland, Calif. Others are generated by the stove's blue flame.

However, researchers are only now starting to firmly link these emissions to actual illnesses occurring in homes with gas stoves.

And while experts think gas stoves pose some level of risk to [indoor air](#)

[quality](#), they caution that the risk needs to be put into its proper context.

"There are also a lot of other pulmonary threats to people in their own home," Han said. "We know that wood-burning stoves can be associated with lung disease across the age spectrum. Radon is the No. 2 cause of lung cancer in the United States. I'm not saying the risk isn't there. It's real. But I think it depends on your own individual situation."

Han speaks from experience. She has a gas stove, and she has a 9-year-old son with well-controlled asthma.

"There's an environmental cost to throwing out good appliances, so I'm trying to take kind of a holistic common-sense approach in my own home," Han said. "I will not run my gas stove without running the hood, which vents to the outside. I also run a HEPA filter in the home, so I'm doing everything I can to mitigate risk in my own home. But when it comes time to replace the stove, I probably will use an electric model."

Links to childhood asthma

The current kerfuffle began with an [evidence review](#) that found that nearly 13% of current childhood asthma in the United States can be attributed to gas stove use.

About 35% of American households use indoor gas stoves for cooking, according to the study recently published in the [*International Journal of Environmental Research and Public Health*](#).

In response to that study, Trumka said the CPSC would conduct a public review of the health hazards posed by gas stoves.

However, the findings related to asthma came as no big surprise to indoor air quality researchers, Lebel and Han said.

The emissions from a lighted burner on a gas range are the first and most obvious source of concern.

"You turn a gas stove on and you can watch it increase and in many cases exceed the EPA's limit for outdoor air quality for nitrogen dioxide," Lebel said. "We know that gas stoves emit nitrogen dioxide. We know that nitrogen dioxide is a respiratory irritant."

Han said gas stoves have been associated with worse asthma symptoms in children, including things like shortness of breath, chest tightness and wheezing.

"I think there's also been studies suggesting that there's increased risk of even developing asthma," she added.

Climate change researcher Francesca Hopkins, an assistant professor of climate change and sustainability at the University of California, Riverside, said she just persuaded her mom to swap her gas stove for an electric model.

Gas stoves represent more of a [health hazard](#) than gas-fueled furnaces or hot water heaters because "they're located in the hearth of the home, where we're much more likely to breathe their emissions, compared to hot water heaters that are usually installed in the garage or outside the house," Hopkins said in a [news release](#).

"We made (carbon dioxide) measurements in her house with a low-cost sensor, and it was shocking how high CO₂ levels were inside, hundreds of parts per million above background," Hopkins said of her mother's home. "It was definitely related to times she used her oven."

The Association of Home Appliance Manufacturers, which represents gas range manufacturers, counters that all cooking produces emissions.

"Ventilation is really where this discussion should be, rather than banning one particular type of technology," said Jill Notini, a vice president with the Washington, D.C.-based trade group. "Banning one type of a cooking appliance is not going to address the concerns about overall indoor air quality. We may need some [behavior change](#), we may need [people] to turn on their hoods when cooking."

Emissions even when not in use

But natural gas on its own, unburned and straight from the pipe, contains a wide variety of chemicals harmful to human health. And those chemicals are seeping into homes.

Samples taken from 69 Boston-area cooking stoves contained at least 21 hazardous air pollutants, including benzene, toluene, ethylbenzene, xylene and hexane, according to a June 2022 study published in the journal [Environmental Science & Technology](#).

"Methane is the principal component of natural gas, but what we also know now is that natural gas, while it is 95% or so methane, there's other things in it," Lebel said.

Worse, those pollutants likely are trickling into people's homes constantly.

Lebel reviewed gas stoves in 53 California homes and found that about three-quarters of all recorded methane emissions occurring indoors happened while the stoves were off, according to a January 2022 report in [Environmental Science & Technology](#).

"There's a potential for these stoves to be emitting gas in your house in levels where that the concentrations are going to be affecting your health," Lebel said. "But the concentration is not going to get enough that

you would be able to necessarily smell it because it's not an explosive hazard at those concentrations, even though it's still a health and climate hazard."

All the evidence indicates that these problems are based on [natural gas](#) and gas stove technology, regardless of the age or the model of the individual appliance, Lebel said.

"When we looked at the gas composition, we found benzene in nearly every sample of gas. We found that nearly every stove emits NO_x that we've measured. We found that nearly every stove emits methane when they're off," Lebel said. "It seems to me from ... the data that we've collected so far, is showing is that it's a systematic issue. It's not ... an individual case basis."

Questions remain

But exactly how much risk do these emissions pose, particularly considering other things that contribute to poor indoor air quality?

That's still an open question, Lebel and Han said.

"There are many other compounding sources of nitrogen dioxide," Lebel said. "If you live next to a freeway, that's a big source of nitrogen dioxide. So it's hard to know how much of an issue that gas stoves are, in terms of the total impact on health concerns like asthma."

In the meantime, there are lots of things that people can do to make their gas stoves safer, Han said.

Studies have shown that running HEPA air filtration can help mitigate the emissions generated by gas stoves, she noted.

People can also improve ventilation by running a hood fan while using their stove, particularly if it vents to the outside, and by opening windows while they cook, Han added.

Folks with gas stoves can also take advantage of simple countertop appliances like electric tea kettles and hot plates, Lebel said.

"If you're only going to boil water or cook a simple meal, you can use that in substitution of your gas stove," he said. "You don't have to use it as much."

Overall, parents concerned about their children's health can do much more than fret about their gas stove, Han said.

"I'm happy that this is getting attention, but there's a whole bunch of other things that can impact respiratory health in children that probably also need attention," Han said of the gas stove debate.

"Pneumonia is one of the leading causes of death for [young children](#), so if you're going to be thinking about your gas stoves, I would also ask parents to make sure their kids have gotten age-appropriate vaccines, to not have their children exposed to secondhand smoke," Han added. "I know this is a hot topic right now, but please don't forget the basics."

More information: The Harvard T.H. Chan School of Public Health has more about [gas stoves and indoor air quality](#).

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