

FACT SHEET

Asthma and indoor gas appliances

Asthma has many triggers, and these vary from person to person: respiratory virus infection, dust mites, mould, and indoor air pollution. One exposure that is often overlooked is the nitrogen dioxide released by using gas for cooking and heating. Nitrogen dioxide (NO₂) is a potent respiratory irritant which can cause asthma attacks and it can also cause allergic sensitisation.

For a child with asthma who lives in a home with a gas stove, 30% of their risk of asthma is from the stove.

A study of Australian school children showed that the chance of being allergic to house dust mites was greater in those exposed to more NO₂. This has been confirmed in animal experiments in which mice became allergic to an antigen (a substance that can cause allergy) when simultaneously exposed to NO₂, while the antigen alone did not lead to allergy.

Room heaters are also important. Researchers from the Woolcock Institute of Medical Research ran a trial in NSW public schools in the Blue Mountains and Goulburn areas, of replacing gas heaters with fully flued versions, and showed a reduction in respiratory symptoms during the weeks when the fully flued heaters were used. In NSW unflued gas heaters are still used in school classrooms, while all other states have removed them. Gas space heaters have the additional risk of carbon monoxide poisoning if they are not operating properly.

What you can do

1. Improve ventilation: If you have a range hood ducted outside the house, turn it on every time you light the stove. Open a kitchen window or door.
2. If you can, replace your gas stove with an induction one. A cheaper option is to use a portable induction cooktop which plugs into a power point. These cost about \$100 and can greatly reduce the need to use a gas stove.
3. Remove unflued gas room heaters.

Useful Links

- A fact sheet by the National Asthma Council. <https://www.nationalasthma.org.au/living-with-asthma/resources/patients-carers/factsheets/gas-stoves-and-asthma-in-children>
- Kicking the Gas Habit. Report by the Climate Council, See the section from page 22 on gas appliances. <https://www.climatecouncil.org.au/resources/gas-habit-how-gas-harming-health/>
- A public Facebook group called My Efficient Electric Home carries stories of people making the change to all electric households. <https://www.facebook.com/groups/996387660405677>
- Carbon Monoxide risks: <https://www.betterhealth.vic.gov.au/health/healthyliving/gas-heating-health-and-safety-issues#gas-heater-safety-alerts>

Practicalities

Range hoods

Range hoods generally filter the air they collect, then either blow it back into the kitchen or through a duct to outside the house. The filters catch some particles but do nothing about NO₂. For a range hood to be of benefit it has to be ducted to the outside. Many are fairly ineffective.

Home heating

Gas space heaters can be unflued, open flued, or sealed off from the room air. The Climate Council publication Kicking the Gas Habit has an illustration of these. Some unflued heaters are designed as Low NO₂, and while these release less NO₂ the problem is not eliminated. It is recommended that gas heaters be serviced every 2 years.

Induction cook tops

Many people find cooking on an induction stove is faster and more flexible than gas, and the stove top is much easier to clean. Not every saucepan works on an induction stove. The cook top needs its own heavy duty circuit and in an old house the meter box may need upgrading. They cost anywhere from \$500 to \$2000.

Costs

When switching from a gas to an induction stove, the energy cost per unit of energy is greater for electricity than for gas, but an induction stove wastes much less energy heating the kitchen. The higher efficiency balances the higher energy price and the cost of cooking is about the same. When switching from gas space heating to reverse cycle air conditioning the efficiency is even better. A reverse cycle air conditioner can deliver 3 to 4 times as much heat as it uses in electricity, so heating costs are likely to be less. If you end up with no gas appliances and can disconnect from the gas network there is a saving in connection fees of several hundred dollars per year.