

Clean cooking fuel and improved kitchen ventilation linked to less lung disease

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Improving cooking fuels and kitchen ventilation is associated with better lung function and reduced chronic obstructive pulmonary disease (COPD), according to research published in this week's *PLOS Medicine*. The study, led by Pixin Ran from the Guanzhou Medical University, China, followed 996 villagers from southern China for 9 years to examine the effects of cleaner fuels and better kitchen ventilation on lung function and disease.

An estimated 3 billion people worldwide heat their homes and cook by burning biomass such as wood or animal dung. The resulting [indoor air pollution](#) is thought to cause more than a million deaths per year from COPD, but few studies to date have examined the long-term consequences of improving indoor air pollution on [lung function](#) and disease.

For this study, the researchers offered nearly 1000 participants from 12 villages access to biogas (a combustible clean fuel made by composting biomass at room temperature in a biogas digester) and improved kitchen ventilation, and people adopted these interventions according to their preferences. The participants provided details about their lifestyle and had their lung function measured both at the outset of the study and at its end 9 years later, and some were also interviewed and examined 3 and 6 years into the study. The researchers also tested [indoor air quality](#) in a random subset of participants' households.

Compared with those who chose not to change fuel or ventilation,

participants who used biogas or improved their kitchen ventilation retained more of their lung function as they aged. People who adopted both improvements performed even better in lung function tests, and they were also less likely to develop COPD.

While the [participants](#) were not randomly assigned to a control group (who declined changes) or intervention groups (who used biogas, improved ventilation, or both), and the study can therefore not prove that the improvements caused better lung function and less COPD, the results nonetheless suggest that the interventions can reduce indoor air pollution and prevent some of its adverse consequences on health.

The authors conclude that "while we recognize that implementing community interventions to change how individuals cook in rural settings in developing countries remains a challenging task, substituting biogas for biomass fuel for cooking and improving kitchen ventilation could lead to a reduction of the global burden of COPD, especially in non-industrialized nations."

More information: Zhou Y, Zou Y, Li X, Chen S, Zhao Z, et al. (2014) Lung Function and Incidence of Chronic Obstructive Pulmonary Disease after Improved Cooking Fuels and Kitchen Ventilation: A 9-Year Prospective Cohort Study. *PLoS Med* 11(3): e1001621. [DOI: 10.1371/journal.pmed.1001621](https://doi.org/10.1371/journal.pmed.1001621)

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