

NEW STUDY LINKS LUNG DAMAGE TO CLEANING CHEMICALS

A new, independent study¹ based on 20 years of research reveals that cleaning your home with chemical cleaning compounds can damage lung tissue. The study showed that cleaning with such products as little as once per week could be as damaging over time to respiratory health as smoking a pack of cigarettes a day for 20 years!

¹ Cleaning at home and at work in relation to lung function decline and airway obstruction, Ø Svanes, et al.

ABOUT THE STUDY

Starting in the 1990s, an international study began tracking a large population of 6 235 women and men with a beginning average age of 34 at 22 health centres in multiple countries. Over the next 20 years, participants were quizzed about their use of both spray and other cleaning products and had their lung capacity tested regularly.

Lung capacity was measured by breathing into a spirometer, an instrument that measures how much air you can exhale. Those with compromised lung function are not able to exhale as much volume as someone who is healthy.

Of the participants, 53% were women and 44% were lifelong nonsmokers. Analysis was adjusted for smokers and those with doctor-diagnosed asthma. Participant data was extensive, ensuring that each subject was well characterised, significantly reducing the likelihood of misrepresentation.

After twenty years of data had been collected, the results were compiled and analyzed by a team of 28 international researchers from nine countries, led by scientists at The University of Bergen in Norway. The study was recently published in the American Thoracic Society's American Journal of Respiratory and Critical Care Medicine.



FINDING 1:

Weekly use of home cleaning products can be as damaging to lung health as smoking 20 cigarettes per day for 20 years.

By now, just about everyone knows the dangers of smoking cigarettes. Among their many hazards is depleted lung capacity – the result of damage to the tender internal tissues of the respiratory system. Lung capacity is important because it is a marker of overall health and fitness.

The body depends on the lungs' life-giving ability to oxygenate blood and expel carbon dioxide – the waste product of metabolism. Decreased lung capacity can lead to obvious declines in fitness, but since the body is so dependent on oxygen exchange, whole systems of the body can be compromised when the lungs become even partially debilitated.

The study concluded that women who used home cleaning products at least once per week saw a similar reduction in lung capacity as those who smoked a pack a day over the same period. According to the authors, "Women cleaning at home or working as occupational cleaners had accelerated decline in lung function, suggesting that exposures related to cleaning activities may constitute a risk to long-term respiratory health."





FINDING 2:

Women are affected more than men.

Though there was a clear correlation between women who cleaned and respiratory illness, there was no similar correlation for men. While the scientists pointed out that the total number of men regularly using household cleaning products was significantly lower than women, the study summary also points out previous research that elaborates on the increased sensitivity of the female respiratory system.

While not completely unaffected, male lungs have been proven to endure greater exposure to environmental pollutants – including cigarette smoke and wood dust – before experiencing a similar drop in lung capacity.^{2,3,4}

This finding is particularly concerning considering women engage with cleaning products more frequently than men.

FINDING 3:

Cleaning at home can be as harmful as being an occupational cleaner.

The survey categorised participants as “not cleaning,” “cleaning at home,” and “occupational cleaning.” While the “not cleaning” subset of women saw only expected, age-related change in lung capacity, the “cleaning at home” group saw the same decreases in lung health as “occupational cleaning.” How could this be the case when cleaning professionals are using cleaning products on a daily, ongoing basis, versus someone performing chores less frequently in their own home?

First, consider that occupational cleaners are most often required to use protective gloves, clothing, and even masks while performing their duties. Those at home may casually disregard warning labels and use cleaning products without adequate protection. Additionally, professional cleaners move from room to room, working in larger spaces with better ventilation than someone at home.

FINDING 4:

Liquid cleaners are as dangerous as sprays.

Study researchers originally suspected that products delivered through a spray or mist would prove more dangerous than those applied as a liquid, gel, or wipe. Surprisingly, the study found no significant difference between cleaner delivery types. The implication is that the chemicals in liquid cleaners become just as available for inhalation through evaporation as those used in sprays.

FINDING 5:

The study hypothesised that the primary ingredients causing the harm may be ammonia, chlorine bleach, and quaternary disinfectant compounds.

The researchers stated, “one could hypothesise that long-term exposure to airway irritants such as ammonia and bleach used when cleaning at home could cause fibrotic or other interstitial changes in the lung tissue, thereby leading to accelerated decline of FVC (forced vital capacity).”

FINDING 6:

Women who regularly use cleaning products have increased rates of asthma.

Researchers found increased rates of asthma within the groups who used cleaning products regularly. This echoes multiple recent studies that have clearly linked the use of dangerous chemical cleaning agents with the onset of asthma.



2. Edwin K. Silverman et al., “Gender-Related Differences in Severe, Early-Onset Chronic Obstructive Pulmonary Disease,” *American Journal of Respiratory and Critical Care Medicine*, 162, no. 6, December 1, 2000.
3. Marilyn G. Foreman et al., “Early-Onset Chronic Obstructive Pulmonary Disease Is Associated with Female Sex, Maternal Factors, and African American Race in the COPD Gene Study,” *American Journal of Respiratory and Critical Care Medicine*, 184, no. 4, August 15, 2011.
4. G. Jacobsen et al., “Longitudinal Lung Function Decline and Wood Dust Exposure in the Furniture Industry,” *European Respiratory Journal*, 31, no. 2, February 2008.

FINDING 7:

Damage is cumulative over time.

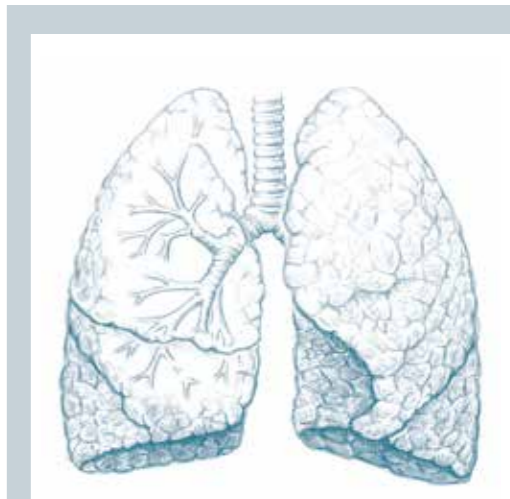
When dangerous chemicals are regularly inhaled into the sensitive tissues of the lungs, it makes sense that the long-term consequence would be serious respiratory problems. “Exposure to cleaning chemicals,” the researchers wrote, “could result in accelerated lung function decline and chronic airway obstruction; low-grade inflammation over many years could possibly lead to persistent damage to the airways, alternatively, persistent damage could result from continued exposure after onset of cleaning-related asthma.” They added that it is already well documented that, “airway irritants such as ammonia and bleach” cause “fibrotic” changes to the delicate lung tissue, essentially scarring the lungs.

Simply stated, regular exposure to the toxins within the home never allows the respiratory system an opportunity to heal, creating a condition where internal damage accumulates. Dr. Cecilie Svanes, a professor at the University of Bergen and senior author of the study, said, “We feared that such chemicals, by steadily causing a little damage to the airways day after day, year after year, might accelerate the rate of lung function decline that occurs with age.”



WHAT DOES THIS MEAN TO YOU?

For those who try to keep a clean safe home, the results of the study are an imperative call to action. If you haven't done so already, now is the time to rid your home of the cleaning products that contain so many harmful chemicals.



THE INTRICATE INTERLACING OF YOUR LUNGS

Like all systems in your body, the respiratory system is miraculous in its design and function. Each breath draws in essential oxygen from the surrounding atmosphere and pulls it deep into your lung tissue. Here, large passageways branch into increasingly smaller and more intricate structures. Eventually, air is funneled into microscopic channels ending in specialised alveolar sacs that are surrounded by a complex network of interlaced capillaries. The surface of these little spherical bellows is where gas exchange takes place. The average human has about 700 million of these sacs, but due to their size, they can be easily and irreversibly damaged if exposed to the wrong elements.