

# Nothing to Sneeze At...

## Exploring Potential Links between Carpet, Asthma and Allergies

In recent years, carpet has been receiving some unfavorable publicity. Carpet has been identified by some as a source of exposure for potential allergens, and anti-carpet activists have sought the removal of carpet from schools and health care facilities.

What causes allergic reactions and asthma? And how does carpet affect exposure to the substances that might have an effect on allergy or asthma?

Noted toxicologist Dr. Mitchell Sauerhoff, Ph. D., DABT, looked at carpet and its purported link to asthma and allergies in his research paper, **“Carpet, Asthma and Allergies - Myth or Reality”**. In it, Dr. Sauerhoff reviewed over 23 scientific studies representing research performed in the U.S. and around the world. After months of research, Dr. Sauerhoff concluded that **the negative perceptions and persistent, long-held beliefs on carpet’s alleged negative characteristics are not consistent with current research.**

**“Based on the available science, carpet does not cause asthma or allergies and does not increase the incidence or severity of asthma or allergies symptoms. In fact ...multiple studies have reported fewer allergy and asthma symptoms associated with carpet.”**  
**Mitchell Sauerhoff, Ph.D., DABT**

### Causes and Symptoms of Asthma and Allergies

Asthma cases have risen significantly in the past 35 years, but **what causes asthma is still unknown**. Asthma and allergies are often misunderstood, as many perceived asthma symptoms and allergic reactions may be attributed to other causes. The conditions can be diagnosed only with proper medical testing. “Triggers”, which can bring on an asthma attack, can be divided for the purpose of this summary into two categories:

- **Chemical irritants** (tobacco smoke, fumes, and dust), and
- **Biopollutants** (pollen, animals, dander, dust mites, mold, and cockroaches).

When carpet has been discussed in connection with **allergic reactions**, it is in the context of *allergic rhinitis* – a condition characterized by runny nose, itchy eyes, increased tearing, and sneezing. These “hay fever” symptoms are caused by exposure to allergens such as the biopollutants listed above. **Unlike asthma, allergic reactions have not been associated with chemical irritants.**

Some people consider carpet to be a source of exposure to VOCs (volatile organic compounds), dust, and allergens. Does carpet expose people to these substances in ways that could affect asthma or allergies?

### VOCs

Research into the potentially adverse effects of VOC emissions from carpet found **“no human health concerns with components of, or emissions from carpet.”** Multiple studies demonstrate that VOC emissions from carpet are typically found in extremely small quantities (usually parts-per-billion), AND the vast majority of these VOCs are short-lived and not harmful at the extremely low levels commonly found. From these and other studies, Dr. Sauerhoff concludes, **“...carpet emissions of VOC are very low and, therefore, the probability of**

**irritants from carpet triggering asthma is extremely low.”**

### **Biopollutants and Mold**

When a former deputy director of the EPA performed a study on whether carpet fosters mold growth he found that, “...**clean carpet does not support mold growth even at prolonged and elevated temperature and humidity levels.**” University of North Carolina investigators compared two schools: one with mostly vinyl floors and one that was predominantly carpet. The study found that levels of airborne contaminants, possible sources of allergens, were **higher over the vinyl tiled floors than over carpet.** Another study used Computational Fluid Dynamics and found that **carpet actually reduces exposure to particulates and potential adverse health effects.**

In view of this research, Dr. Sauerhoff contends that, “**the lower levels of airborne particulates over carpet are ...more healthful or certainly no worse than air in a room with smooth surface flooring.**”

### **International Research**

Studies in Sweden, Germany, Norway, and Australia have all produced data that refute the idea of a correlation between carpet use and allergic reactions. In Sweden, researchers revealed how carpet's market share in that country dropped by 38% between 1975 and 1992, due in large part to negative publicity about carpet, while the incidence of allergies increased fourfold during the same time period.

### **Carpet and Schools**

Repeated studies in the U.S. and abroad have determined carpet to be safe and healthy floor covering for schools. One recently published review summarized the results of 21 separate studies and found **no causal relationship between the use of carpet and any identifiable health consequences.** A Dutch study followed a group of asthmatic children from carpeted and uncarpeted classrooms and concluded that carpeted classroom floors do not contribute to asthma symptoms or severity. A well-known indoor environmental expert performed testing in over a dozen Florida schools and determined that **carpet can improve indoor air quality because carpet captures and holds dirt, contaminants and allergens that would otherwise become airborne.**

### **Resting Easy with Carpet**

A 2003 study examined over 4,000 U.S. elementary students and their parents and found that not only did carpet in classrooms have no affect student health, but that **carpet in a child's bedroom was associated with lower rates of asthma medication use and school absenteeism.**

### **Once and Again**

In 1993 a study titled ***Global Strategy for Asthma Management and Prevention*** was published collaboratively by the U.S. National Heart, Lung, and Blood Institute and the World Health Organization. The 2007 update to the original report states that **there is no evidence that replacing carpet with hard surface flooring has a health benefit.** “Thus,” Dr. Sauerhoff concludes, “one of the most important reports in 2007 regarding asthma and prevention measures supports what is stated in the overwhelming view of clinicians and others who have studied this topic.”

### **Summary**

Based on the weight of evidence available in current scientific research, it is clear that:

- Carpet does not cause asthma
- VOC emissions from new carpet do not act as triggers for asthma or allergies
- Carpet does not increase the incidence or severity of asthma or allergies in children and adults
- From the standpoint of asthma and allergies, **carpet is safe**

#### **About Mitch Sauerhoff**

Dr. Mitchell Sauerhoff is a Board Certified Toxicologist and a member of the Society of Toxicology. He holds a Ph.D. in Toxicology from the University Of Cincinnati College Of Medicine and is currently an independent consultant focused primarily on safety evaluation, drug development, and occupational/environmental health. Dr. Sauerhoff has published extensively in toxicology and assists in the training of Emergency Room physicians in principles of Medical and Industrial Toxicology. Dr. Sauerhoff serves on the Connecticut Poison Control Center Medical Advisory Board and lectures at the University Of Connecticut School Of Law.

Dr. Sauerhoff's report, "**Carpet, Asthma and Allergies - Myth or Reality**", is available at <http://www.flooringsciences.org/e-journal/title.cfm>