COPD and Air Pollution: A Risky Combination

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COPD and Air Pollution

How many of you with COPD have ever taken a vacation and found that your COPD either worsens or improves when you reach your chosen locale? There are any number of reasons that could cause this – but air quality could play a big factor.

If you're used to living in an environment with poor air quality, traveling to an area with cleaner air could be a boon to your breathing. On the flip side, if your local air quality is pretty great, if you travel to a locale that is fraught with pollution, chances are, your symptoms are going to go haywire.

So, let's take a closer look at the COPD and air pollution connection.

What Is Air Pollution?

We've all heard of "pollution," right? We know, at a very basic level, that it means "bad air." But what is "air pollution" *really?*

The National Institute of Environmental Health Sciences states that air pollution is a "mixture of natural and man-made substances in the air we breathe. It is typically separated into two categories: outdoor air pollution and indoor air pollution."

Outdoor air pollutants include:

- Tobacco smoke
- Noxious gases, such as carbon dioxide and chemical vapors
- Ground-level ozone ("a reactive form of oxygen and a primary component of urban smog")
- Fire particles from burning fossil fuels

Indoor air pollutants include:

- Household products
- Building materials, such as asbestos and lead
- Outdoor/indoor allergens, such as mouse and cockroach droppings
- Mold and pollen

As you can see, these are some pretty heavy-duty "things" to be in the air. Not every one of these pollutants will be present in every city, nor will every pollutant trigger every person with COPD.

How Does Air Pollution Affect COPD?

If you're reading this article, you know what the symptoms of COPD are. You're living them every single day. You probably manage them carefully by avoiding your triggers and taking medications.

Air pollution is one of those unavoidable triggers, though. You can't change the air quality. Sure, you can pack up your home, sell your house, and move to a different location, but that isn't always practical.

And if you're scheduling a vacation, you don't always *know* what the air quality will be like, several months ahead of time.

So, it is a good idea to know how air pollution can cause an exacerbation so that you can stay ahead of the ballgame.

If you're sensitive to air pollution (like most people with COPD probably are!), being exposed to too much can send your lungs into overdrive. When this happens, the lungs begin to react by inflaming, causing the airways to narrow. This inflammation and narrowing of the airways also bring about excess mucus accumulation in the lungs.

So, how does it feel for you? Your typical COPD symptoms are intensified – your breathlessness is worsened, as is your mucus production (which may also change colors), your cough may be worse, as may your fatigue – although you'll likely have trouble sleeping due to the breathlessness and coughing, and you may even have a fever.

How Does Air Pollution Cause COPD?

Researchers also believe that long-term exposure to pollution – even low-level pollution – may increase the risk of developing COPD.

A research study conducted in Denmark studied participants who lived in Copenhagen or Aarhus – Denmark's two largest cities. More than 57,000 participants, aged 50 to 64, were eligible for the study. Participants had to complete a questionnaire about their habits, and then researchers linked their questionnaires to the Danish Hospital Discharge Register, which was able to identify hospitalizations and discharges related to COPD.

At the conclusion of the study, in 2006, Zorana Anderson, Ph.D., a postdoctoral fellow at the Institute of Cancer Epidemiology of the Danish Cancer Society in Copenhagen, stated, "We found significant positive associations between levels of all air pollution proxies and COPD incidence. When we adjusted for smoking status and other confounding factors, the association remained significant, indicating that long-term pollution exposure likely is a true risk factor for developing COPD."

Treatment of Air Pollution-Related COPD

According to the World Health Organization (WHO), there is a four-component approach to managing COPD:

1. Assess and monitor disease
2. Reduce risk factors
3. Manage stable COPD
4. Manage exacerbations

In the case of air pollution-related COPD, the best approach is prevention. By now, if you're reading this, you're reading this, it is likely you have a diagnosis of COPD – as well as COPD that exacerbates by air pollution.

The first step, then, is to identify which triggers (out of the many!) are going to worsen your COPD – and avoid them as best as feasibly possible.

Next, come up with a treatment plan with your physician. This includes prevention and medications. If you're planning on traveling, this also includes coming up with a "travel plan" so that you can stay healthy while

traveling.

Unfortunately, exacerbations are a part of the disease – knowing the symptoms of a COPD exacerbation are vital before it becomes an emergency. Always carry emergency medication at all times, and know when to use it.