How Does Air Quality Affect COPD Symptoms?

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The Relationship Between COPD and Air Quality

It may seem as if you are all alone with your COPD diagnosis. However, there are upwards of 15 million adults with a COPD diagnosis – and this is just those who have an official diagnosis. There are as many as 12 million adults who are living with COPD and don't even know they have the disease.

COPD costs Americans billions – yes, billions – of dollars annually. It is estimated that we are spending $30 billion yearly.

Yes, I may be preaching to the choir. COPD can cost a lot of money to manage. Prescriptions are pricy. This is not news. However, it may be possible to improve COPD by looking at what is triggering COPD symptoms.

Many factors can affect COPD symptoms. Air quality is a large trigger for many people.

What is Air Quality?

The Air Quality Index (AQI) is "an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects might be a concern for you. The AQI focuses on health effects you may experience within a few hours or days after breathing polluted air."

The AQI is measured daily based on five known pollutants:

1. Ground-level ozone.
2. Particle pollution.
3. Carbon monoxide.
4. Sulfur dioxide.
5. Nitrogen.

The AQI is measured by a number 0 to 500. The number corresponds to a color, which also corresponds to a level of health concern:

- 0 to 50: air quality is good, symbolized by color green.
- 51 to 100: air quality is moderate, symbolized by the color yellow.
- 101 to 150: air quality is unhealthy for sensitive groups, symbolized by the color orange.
- 151 to 200: air quality is unhealthy, symbolized by the color red.
- 201 to 300: air quality very unhealthy, symbolized by the color purple.
- 301 to 500: air quality is hazardous, symbolized by the color maroon.
- 500 and over: air quality is beyond the AQI.

And that is just outdoor pollution.

Indoor pollutants are typically the same as outdoor pollutants, but the concentrations are lower. However, other pollutants may be found, such as tobacco smoke, emissions from construction materials and poor ventilation.

What is the Relationship Between COPD and Air Quality?

It is estimated that over 160 million Americans live in areas that exceed air pollution standards. While this is harmful to everyone's lungs – it is especially harmful to those with COPD.

There is mounting evidence that suggests that long-term exposure to air pollution may increase the risk of developing COPD. This means that, even as a non-smoker, you could develop COPD because of air pollution.

If you have COPD, there is evidence to suggest that poor air quality worsens COPD symptoms – even increasing the risk of death in those with COPD.

How Does Air Quality Affect COPD Symptoms?

Ingestion of pollutants is harmful and increase the risk of COPD, as we already discussed, but it can also increase the risk of certain cancers, such as bladder cancer, as well as cardiovascular disease.

People with COPD who are subject to poor air quality may note the following, as discussed by the Journal of Thoracic Disease: "decrease in pulmonary function, increase of infections, increase in respiratory symptoms, acute exacerbations of COPD, onset of asthma, more hospitalizations, increased respiratory mortality, and higher prevalence of childhood asthma."

Air pollution also leads to a risk of lung cancer, which is one of the most prevalent cancers in large cities.

"Research showed that an increase in road traffic was associated with lung cancer. Ambient air pollution, specifically PM and NO2 were associated with a higher risk for lung cancer."

COPD and Air Quality Coping Tips

Short of moving to a location with better air quality, which is unrealistic for many people, the air quality is mostly out of your control. Here are some tips for coping with COPD and air quality:

- Check the AQI daily. Plan activities outdoors when the index is better and plan indoor activities when the index is poor.
- Exercise indoors when the AQI is poor. If you are going to exercise outdoors, exercise in the morning, when the pollution levels are likely to be lowest.
- Keep windows closed and run air conditioning in air recirculation mode.
- Breathe properly – breathe through the nose, not the mouth.
- Using a mask, such as an N95 mask, when outdoors may be helpful. These masks can reduce the exposure to pollution.
- Stop smoking! Although this will not reduce air pollution outdoors, it can improve indoor pollution.
- Become an advocate for improving air quality in your neighborhood. Change starts small!

The Bottom Line…

Managing COPD symptoms is a delicate balance between taking medications as prescribed and avoiding triggers. You may not be able to change where you live but understanding air quality – and how to live best in your community – may improve your symptoms.