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Extreme Heat and Air Quality: Understanding the Connection

It is of no surprise that the impacts of climate change have caused Canadian and global temperatures to rise, with extreme heat increasing in frequency, intensity, and duration. Though heat waves are often linked to heat exhaustion and dehydration, their effects on indoor air quality are less frequently considered. Periods of intense heat frequently result in increased exposure to airborne pollutants and worsening symptoms for people with Multiple Chemical Sensitivity (MCS). However, individuals can reduce exposure and take care of their health by making educated decisions based on their understanding of this connection.

Why Does Extreme Heat Worsen Air Quality?

Pollutants in the atmosphere behave differently during hot weather. The concentration of ground-level ozone, one of the primary constituents of smog, can rise due to chemical reactions triggered by heat and sunlight. Ground-level ozone is detrimental to human health and can irritate the eyes, nose, throat, and lungs, in contrast to the protective ozone layer found high in the atmosphere.

Extreme heat can also cause:

- Greater amounts of PM2.5, or fine particulate matter
- Increased emissions from industrial processes and automobiles.
- Increased chemical evaporation from building materials, paints, fuels, and solvents.
- More severe and frequent smoke events from wildfires.

Pollutants are trapped in stagnant air near the ground. Even in places that usually have relatively clean air, these factors can quickly worsen air quality.

The Effect on Those with MCS

Poor indoor air quality can worsen symptoms and make everyday exposures more difficult for people living with MCS.

Common triggers during periods of extreme heat may include:

- Wildfire smoke
- Vehicle exhaust
- Emissions from pavements and asphalt
- Fragrances that intensify in warm weather
- Volatile organic compounds (VOCs) that evaporate more easily in heat, such as cleaning supplies.
- Air pollution from the outdoors entering buildings and homes

Headaches, respiratory irritation, exhaustion, lightheadedness, cognitive impairments, skin irritation, or exacerbation of pre-existing symptoms can all be caused by exposure. However, everyone experiences MCS differently, and triggers can differ from person to person.

Monitoring Air Quality

Keeping an eye on the local weather is just one step to staying safe during a heat wave. Monitoring the local air quality is equally important. An Air Quality Health Index (AQHI) or comparable air quality forecast that shows the degree of health risk associated with current conditions is now included in many weather services. We can use this information to decide whether it's safer to stay indoors and keep windows closed on any particular day.

Pay close attention to the following:

- Air quality warnings
- Alerts for extreme heat
- Smoke warnings for wildfires
- Announcements about local public health

Forecasts can help you plan activities more safely as conditions can change throughout the day.

Lowering Exposure During Periods of High Heat

Although poor air quality cannot always be prevented, there are measures that could lessen exposure.

Consider:

- Restricting outdoor activities when the air quality is bad
- Closing windows and doors when there is a lot of smoke or pollution
- Use a good quality air filtration system if available
- Staying hydrated and avoiding vigorous physical activity
- Scheduling appointments or errands for times of day when pollution and temperatures are lower
- Heading to cooler indoor spaces with adequate ventilation if your home gets too hot

It is important to remember that each person has unique needs and may respond differently to chemical exposures. Strategies that are effective for one individual may not be effective for another.

Environmental Health and Climate Change

Longer wildfire seasons, more frequent heat waves, and altered air quality patterns are all consequences of climate change in many parts of the world. Emergency preparedness, public health messaging, and healthcare systems must take into account the needs of people with MCS as communities adjust to a changing climate. During extreme weather events, accessible cooling centres, fragrance-free public areas, cleaner indoor air, and inclusive emergency preparedness can all help lower barriers.

Looking Ahead

There's no denying the influence of extreme heat on the quality of the air we breathe. We can all better prepare for times of increased risk and make decisions to take care of our health by being aware of how heat and air pollution are related. Together, we can build climate-resilient communities as extreme weather events become more frequent, particularly for those with MCS.