

Are Wildfires Fueling an Increase in Pink Eye?

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Canada's exceptional wildfire season has triggered a rising number of people with conjunctivitis
- › This is not infectious pink eye, but rather irritation of the conjunctiva from allergens, chemicals, and particulate matter in the wildfire smoke
- › People with dry eye syndrome have an increased sensitivity to pollution, which may reduce the time it takes before their eyes begin to hurt
- › Several measures can help lower irritation, such as staying indoors on poor air quality days with an air conditioner and air filter; seek shelter elsewhere if you don't have air conditioning on days when health experts warn you to stay indoors. Don't add to indoor air pollution by burning anything like candles, fireplaces or tobacco products

Experts have seen an increase in eye conditions related to smoke from Canadian wildfires.¹ The area of wooded acres lost to the fires is roughly the size of the state of Kentucky and there's more than a month of peak fire season left to go.

This season's fire loss has already exceeded the previous annual record set in 1989. The fire season started earlier than normal this year, producing air pollution that poured into the U.S., affecting air quality in the Midwest, along the Great Lakes, and in central Tennessee and North Carolina as well as the Northeast coast.²

Air Pollution From Wildfires Fueling Conjunctivitis

The smoke from wildfires primarily consists of particulate matter, and other organic and trace minerals. Particulate matter is a pollutant of most concern regarding eye problems.³ Some ophthalmologists are seeing increasing complaints of conjunctivitis and eye irritation than in past years.⁴

It is important to note that there is a difference between conjunctivitis and what is commonly called pink eye. The conjunctiva⁵ is the thin clear membrane that covers the eye, helps keep the eye lubricated and prevents irritants from getting in. It also protects the whites of the eye, the cornea and the pupil. It produces mucus that combines with a watery substance from the lacrimal glands and oil from the meibomian glands to form tears.

One of the most common conditions affecting the conjunctiva is conjunctivitis. When irritation is caused by a viral infection, it's called pink eye. The conjunctiva can also be irritated by allergens, poor air quality and chemicals. When conjunctivitis is the result of non-infectious irritants, it can present like allergic conjunctivitis.

Milli Roy is an assistant professor in the department of ophthalmology at the University of Toronto and a practicing ophthalmologist in Oakville, Ontario. She spoke with CTV News⁶ about the increasing number of patients in her practice with complaints of irritation that were exacerbated by poor air quality from the wildfires.

"What we are seeing is that the wildfire smoke creates an external irritant to the eye," Roy said. "So that produces a form of what we call conjunctivitis due to that external irritation. And the other thing that happens with the wildfire smoke is with all the toxins that are in the air, it sort of acts as a bit of an allergen as well. So it can cause a little bit of an allergic conjunctivitis (as well)."

You might not imagine that Canada could have severe air quality, but CTV News⁷ reports that for one day in July, Toronto's air quality was the worst in the world and only a few days before that Montreal held the inauspicious title. Roy commented that poor air quality from the wildfires could cause burning and tearing, light sensitivity and watery discharge from the eyes.

Dan Riskin, CTV News's Science and Technology Specialist noted that after a wildfire near Canberra, Australia, 73% of the people in the area reported eye irritation, which was five times "higher than places without wildfires."⁸ A 2022 study⁹ suggests that wildfires are one source of air pollution that can damage the ocular surface. The scientists suggest more research is needed to better understand how exposure in an acute and chronic setting could affect the eyes.

People With Dry Eye May Have More Difficulty

Roy told CTV news that some people are more sensitive to poor air quality and particulate matter and one of the things that increases sensitivity is dry eye. At one time or another, you may have noticed that your eyes are dryer than usual. For example, working in a dry environment, taking cold or allergy medications, and being around secondhand smoke can reduce your tear production and dissipate your tears more quickly.¹⁰

However, while dry eyes are irritating, it is not dry eye syndrome. There are several causes for this health condition, including that your tears dry too quickly, your glands don't make enough tears to keep your eyes lubricated or your tears aren't effective at keeping your eyes lubricated.¹¹

If you have dry eyes, whether from acute environmental exposure or from dry eye syndrome, you'll experience a scratchy feeling on your eye often accompanied by stinging, burning, sensitivity to light and blurry vision. The whites of your eyes will likely be red. Your healthcare provider can diagnose the condition based on your medical history and eye examination, including tests on your tears and exploring other potential causes.¹²

According to Roy,¹³ dry eye is a common condition and rising levels of external irritants like those found in wildfire smoke, can also increase the risk of conjunctivitis.

Marisa Sit is an ophthalmologist at the Donald K Johnson Eye Institute. She spoke with CTV News on a phone interview about the timing of wildfire exposure and potentially

related conjunctivitis symptoms saying it "varies between individuals and their kind of pre-existing condition of their eyes."¹⁴

Poor Air Quality Can Trigger a Range of Health Conditions

A paper in Investigative Ophthalmology and Visual Science¹⁵ cautions that poor air quality can also trigger oxidative stress and may increase age-related diseases such as macular degeneration, cataracts and glaucoma.¹⁶

The air pollutants that trigger the most damage in wildfire pollution are **small particulate matter** that can enter your lungs and lodge deep within your tissue. The American Lung Association¹⁷ warns these particulate matters can trigger asthma attacks, strokes and heart attacks.

Near a fire, another threat is rising levels of carbon monoxide that can reduce oxygen delivery and trigger nausea, dizziness and headaches.

The short-term health effects are similar to those reported by the EPA, which include respiratory symptoms, reduced lung function, heart failure, heart attacks and stroke. It only takes a cumulative short-term exposure to particulate matter from wildfires over multiple days to reduce lung function.¹⁸ People with preexisting heart and respiratory conditions, as well as pregnant women and children have a higher risk of getting sick from wildfire smoke.

Protect Your Eyes From Poor Air Quality

There are several "common sense measures" Roy says¹⁹ that people can take to reduce eye irritation caused by poor air quality. First, pay attention to your symptoms and head back inside if they get worse.

Some people find relief from cool compresses and others are just not able to go outside when air quality is poor. For those who must be outside for long hours because of their

job, it helps to wear protective eyewear like goggles to help reduce the amount of pollution that has access to the surface of your eye.

It's also important to remember to wash your hands before touching your face and avoid wearing contact lenses if you can. Steer clear of rubbing your eyes as you may transfer dust onto your face or eyes, or you may scratch or irritate the eyes further. Pay attention to the AQI for your local area and recommendations by health officials.²⁰

If local health officials recommend staying indoors, keep windows and doors shut as much as possible and run an air conditioner. However, if you don't have an air conditioner and it's too warm to stay inside, seek shelter elsewhere. Refrain from using anything that burns like candles, fireplaces and tobacco products that add to indoor air pollution.

Sources and References

- ^{1, 6, 7, 8, 13, 14} [CTV News, July 11, 2023](#)
- ² [The New York Times, July 17, 2023, Para 4](#)
- ³ [NVision Centers, December 13, 2022](#)
- ⁴ [CTV News, July 11, 2023, paras 1-6](#)
- ⁵ [Cleveland Clinic, Conjunctiva](#)
- ⁹ [Environmental Pollution, 2022; 309 \(119732\) Abstract](#)
- ¹⁰ [Mount Sinai, Dry Eye Syndrome, Section 1](#)
- ¹¹ [National Eye Institute, Dry Eye, subhead 1, 2, 3, 4](#)
- ¹² [Cleveland Clinic, Dry Eye, How is Dry Eye Diagnosed?](#)
- ¹⁵ [Investigative Ophthalmology and Visual Science, 2021;62\(7\)](#)
- ¹⁶ [Investigative Ophthalmology and Visual Science, 2022;63\(17\)](#)
- ¹⁷ [American Lung Association, January 1, 2016 Dangers of wildfire smoke](#)
- ¹⁸ [Environmental Protection Agency, Health Effects Attributed to Wildfire Smoke, Table](#)
- ¹⁹ [CTV News, July 11, 2023, Subhead 1](#)
- ²⁰ [Centers for Disease Control and Prevention, Wildfire smoke #1-7](#)