

December 1, 2020

NINE REASONS WHY WE ARE MORE LIKELY TO BE INFECTED BY A VIRUS DURING THE WINTER MONTHS.

1. COVID-19, Influenza and common cold viruses like cold dry weather. For many years, it was impossible to test these hypotheses, since most lab animals do not catch the flu like humans do, and using humans as test subjects for this sort of thing is generally frowned upon. Around 2007, however, a researcher named Dr. Peter Palese found a peculiar comment in an old paper published after the 1918 flu pandemic: the author of the 1919 paper stated that upon the arrival of the flu virus to Camp Cody in New Mexico, the guinea pigs in the lab began to get sick and die. Palese tried infecting a few guinea pigs with influenza, and sure enough, the guinea pigs got sick. Importantly, not only did the guinea pigs exhibit flu symptoms when they were inoculated by Palese, but the virus was transmitted from one guinea pig to another.

Now that Palese had a model organism, he was able to begin experiments to get to the bottom of the flu season. He decided to first test whether or not the flu is transmitted better in a cold, dry climate than a warm, humid one. To test this, Palese infected batches of guinea pigs and placed them in cages adjacent to uninfected guinea pigs to allow the virus to spread from one cage to the other. The pairs of guinea pig cages were kept at varying temperatures (41°F, 68°F, and 86°F) and humidity (20%-80%). Palese found that the virus was transmitted better at low temperatures and low humidity than at high temperatures and high humidity

2. We lose our immunity – or have none. One way our immune systems are suppressed, especially in the winter months from Halloween through Valentine’s Day, is through excessive sugar intake. Sugar not only suppresses the white blood cells, but also feeds bacteria and viruses. Also, some medications, particularly those to help with autoimmune disorders, like arthritis, can suppress the immune system, increasing vulnerability to viruses like COVID-19.

3. We spend more time indoors closer to one another. 15 minutes or more in shared, indoor airspace with someone who is contagious (with or without symptoms) can greatly increase the risk of infection.

4. Laboratory experiments reveal that COVID-19 (SARS-CoV-2) favors cold, dry conditions, particularly out of direct sunlight. For instance, artificial ultraviolet radiation can inactivate SARS-CoV-2 particles on surfaces and in aerosols, especially in temperatures of around 104 degrees Fahrenheit. Infectious virus also degrades faster on surfaces in warmer and more humid environments. In winter, people tend to heat their houses to around 68°F, and the air is dry and not well ventilated.

5. Without much sunlight the body runs low on vitamin D, needed to regulate our immunity systems. We can supplement Vitamin D with sunshine, foods High in Vitamin D and by taking supplements.

6. When we breathe in cold air, the blood vessels in our nose may constrict to stop us losing heat. This may prevent white blood cells (the warriors that fight germs) from reaching our mucus membranes and killing any viruses that we inhale, allowing them to slip past our defenses. Once a virus has penetrated this defense mechanism, the immune system takes control of fighting off the intruder. Phagocytes, which are specialized immune cells, engulf and digest viruses. However, researchers have also linked cold air to a decrease in this activity.

7. Cold air can carry less water vapor before it reaches the “dew point” and falls as rain. So while the weather outside may seem wetter, the air itself is drier as it loses the moisture. And a steady stream of research over the past few years has shown that these dry conditions seem to offer the perfect environment for the flu virus to flourish.

8. We expel a mist of particles from our nose and mouths. In moist air, these particles may remain relatively large, and drop to the floor. But in dry air, they break up into smaller pieces – eventually becoming so small that they can stay aloft for hours or days.

9. Researchers have discovered that at temperatures slightly above freezing and below, the virus's lipid covering solidified into a gel. At about 70 degrees Fahrenheit, much of the lipid was still in gel form. At warmer temperatures, however, the gel melts to a liquid phase. At temperatures of about 105 degrees and higher, the coat was all in liquid form. The virus's rubbery outer coat, the researchers believe, allows it to withstand cooler temperatures and travel from person to person. In the respiratory tract, the body's warmth causes the covering to melt so that the virus can infect the cells of its new host.

The liquid phase, presumably, isn't tough enough to protect the virus against the elements, and so the virus loses its ability to spread from person to person in warm air. As the weather warms in spring, the flu viruses dry out and weaken, and the flu season wanes.

Combating a Virus in the Winter:

When we go inside so does the virus and they spread more easily indoors. But there are many other factors that make a virus contagious in the winter. Cool outdoor temperatures, low humidity, lack of sunshine, too much sugar and lower levels of Vitamin D can all play a part.

Sources:

BBC Article “The Real Reason Germs Spread in the Winter” [Click Here](#)

Nature.com- Why COVID Outbreaks Look Set to Worsen this Winter. [Click Here](#)

Medical News Today- Why do Colds and Flu Strike in Winter? [Click Here](#)

Harvard University – The Reason for the Season: Why Flu Strikes During the Winter [Click Here](#)

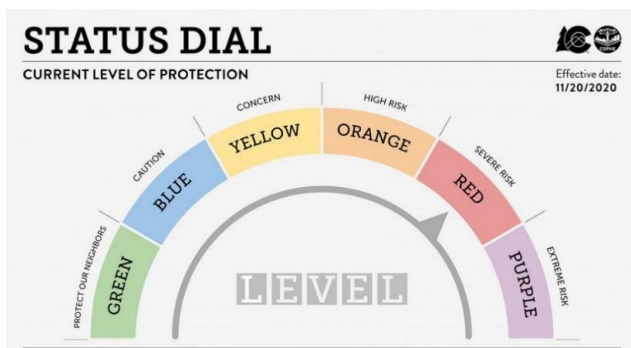
National Institutes of Health – Flu Virus Fortified in Colder Weather [Click Here](#)

Health.Gov- Dietary guidelines Vitamin D [click Here](#)

C-net Health and Wellness – Doctors Warn that too much Sugar can Temporarily Weaken your Immune System [Click Here](#)

METRIC:

Boulder County Current Status



This dial includes six levels, from least to most restrictive. Details for each level outline specific metrics and how many people can participate in various activities at one time. **As of Friday, Nov. 20, Boulder County is at Level Red: Severe Risk.** Visit the [CDPHE COVID-19 Dial page](#) for more information on the dial metrics, levels and capacity limits, and FAQ