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HEALTH NEWS

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Here's How Fast and Far a Sneeze Can Carry Contagious Germs

Most people understand coughing and sneezing can spread germs that cause illness, but the speed and distance they can travel might surprise you.

Germs expelled into the air by coughing and sneezing can spread with surprising speed. Getty Images

“Bless you.”

This simple saying is often heard after someone sneezes.

For many people it’s a common courtesy that’s become so engrained in them it’s an automatic reaction the moment they hear a sneeze.

However, according to new study, when a person sneezes near you, your first priority should be to back away before you offer any blessings.

Why?

Because contagious germs can spread further and faster than you may think.

Researchers at the University of Bristol assessed the airborne survival of bacteria in aerosol droplets from coughs and sneezes.

They found the average sneeze or cough can send around 100,000 contagious germs into the air at speeds up to 100 miles per hour.

These germs can carry viruses, such as influenza, respiratory syncytial virus (RSV) and adenoviruses, which cause the common cold.

They can also carry bacteria, such as *Streptococcus pneumoniae* or *Haemophilus influenzae*.

The most critical time for spread of those germs, according to the researchers, is in the first few minutes after a sneeze or cough occurs.

“This type of transmission is of special importance since it doesn’t require proximity between individuals. The droplets’ small size adds the potential to penetrate deeper in the lung,” Allen Haddrell, PhD, one of the study’s authors, told Healthline.

While aerosols that carry the germs eventually drop to the ground, that takes time.

“Given the small size of bioaerosol droplets (diameter less than the width of a human hair), they can remain suspended in the air for prolonged periods of time, from seconds to weeks,” said Haddrell.

New technology to study infectious diseases

Because there are a lot of unknowns about the spread of diseases in the aerosol phase, Haddrell says he and colleagues have developed a next-generation device to study infectious disease in microscopic aerosol droplets.

The device, called CELEBS (controlled electrodynamic levitation and extraction of bioaerosol onto a substrate), offers unique features, such as creating microscopic droplets (with a radius less than half the width of a human hair) that have a designed composition and known number of pathogens.

Using this technology, Haddrell says researchers can directly and systematically monitor the effect that droplet composition and environmental conditions have on pathogen infectivity.

“With this novel approach, we are able to investigate not only the lifespan of these microorganisms, but also the interplay between key environmental, biological, physical, and compositional conditions while replicating the exact aerosol state during transport,” he said.

“Thus, we will be able to better understand the airborne mechanisms of transmission and use this information to eradicate any emerging pathogen/ airborne diseases.”

He points out that CELEBS could help determine why some droplets are more infectious than others. The information also could impact the design of buildings (such as hospitals), agricultural practices, disease exposure, food safety regulations, dissemination of a diseases outbreak, and more.

“Understanding these survival mechanisms enables the improvement of policies and regulations to mitigate the risk of spread of diseases,” he said.

He also aims to advance the technology so that researchers can investigate respiratory pathogens that are important to public health, such viruses that cause the common cold and influenza as well as bacteria that cause tuberculosis or pneumonia.

“Despite much research on such microorganisms, there remain important questions for understanding disease dynamics, such as, why do some infections exhibit seasonal peaks in incidences, and why is person-to-person transmission often linked to the early rather than later stages of the disease? Understanding these processes in greater detail at the single droplet scale may lead to better or alternative mitigation strategies,” said Haddrell.