



Potential Implications of Respiratory Viral Infections on Human Health

Kennedy Kirsten*

Department of Pediatrics, Indiana University School of Medicine, Indiana, United States of America

DESCRIPTION

Respiratory viral infections are caused by any virus that can infect the respiratory system, such as the common cold, influenza, and COVID-19. These infections can cause a wide range of symptoms, ranging from mild to severe. The Microbiome is a collection of microorganisms found in various parts of the human body, including the respiratory tract. Recent studies have shown that the Microbiome may play an important role in understanding and managing respiratory viral infections. The Microbiome is composed of bacteria, fungi, viruses and archaea which interact with each other to form a complex ecosystem. Each species plays a different role in maintaining a healthy balance within this ecosystem. Some species are beneficial and protect against infection while others can make us more vulnerable to disease or worsen existing conditions. This balance is influenced by many factors such as diet, genetics, environment and lifestyle choices.

In recent years, researchers have begun exploring the potential links between respiratory viral infections and the Microbiome. While it's still not fully understood how they interact with each other, there is evidence that changes to the Microbiome can increase our risk for certain diseases or make them worse. For example, research has found that infants who are born *via* cesarean section are more likely to develop asthma than those born vaginally due to differences in their microbiomes. Furthermore, studies have shown that alterations in gut Microbiota can increase susceptibility to certain types of influenza viruses while other microbes may be able to prevent or reduce severity of illness associated with some diseases such as colds and flu. It's also believed that antibiotics used to treat bacterial infections may damage beneficial bacteria in our bodies which could make us more vulnerable to infectious diseases like colds and flu. Additionally, allergies caused by specific microbes may contribute to increased risk for developing certain viral illnesses such as rhinovirus which causes common colds or even SARS-CoV-2 which causes COVID-19.

The human respiratory system is made up of organs and structures designed to allow air to pass in and out of the body.

This includes the nose, throat, trachea, bronchioles, and lungs. Millions of microorganisms also live in this environment a community known as the respiratory Microbiome. The structure of this Microbiome is thought to play an important role in maintaining our respiratory health. Viruses are one of the most important causes of acute respiratory illness in humans, including influenza, rhinovirus, Para influenza virus, and coronavirus. To better understand how the composition of a person's Microbiome may influence their susceptibility to such viral infections, research studies have been conducted to explore the relationship between respiratory viruses and microbial diversity.

Recent studies have focused on identifying potential correlations between viral infections and changes in microbial diversity in both healthy people and those with chronic respiratory diseases. In a study investigating children with influenza-like illnesses (ILI), researchers found that children with more severe symptoms had lower bacterial diversity than those with milder symptoms. This suggests that reduced bacterial diversity may be associated with increased severity of ILI symptoms. Recent studies have suggested a possible link between respiratory viral infections and the Microbiome, which is the collection of microorganisms that inhabit an environment. Interestingly, evidence suggests that these respiratory virus infections may have long-term implications for human health. The potential implications stem from the fact that viruses can affect both the composition and structure of the Microbiome, thus altering its function. This can result in changes to immune system responses, as well as inflammation levels. As an example, studies have shown that respiratory infections are linked to increased levels of cytokines, molecules associated with inflammation. Furthermore, viruses can also directly affect cells within the Microbiome potentially causing them to multiply or die off at a rapid rate which can further disrupt its functioning. Given these findings, it appears likely that there is a strong correlation between respiratory viral infections and changes to the composition of the Microbiome. Consequently, researchers suggest that further investigation into this relationship is needed to determine whether there are any significant long-term effects on human health.

Correspondence to: Kennedy Kirsten. Department of Pediatrics, Indiana University School of Medicine, Indiana, United States of America, E-mail: kirsten_lu.ck_kennedy@emial.com

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Recent research has looked at the link between respiratory viral infections and the human Microbiome. It appears that when a person is infected with a respiratory virus, there is an impact to their Microbiome. This impact can vary depending on the virus and the individual's unique physiology. However, it appears that

multiple types of viruses can reduce microbial diversity as well as cause some imbalance in the microbial community structure. Further studies are necessary to gain a better understanding of how respiratory viruses influence our Microbiome, and how this may affect our overall health.