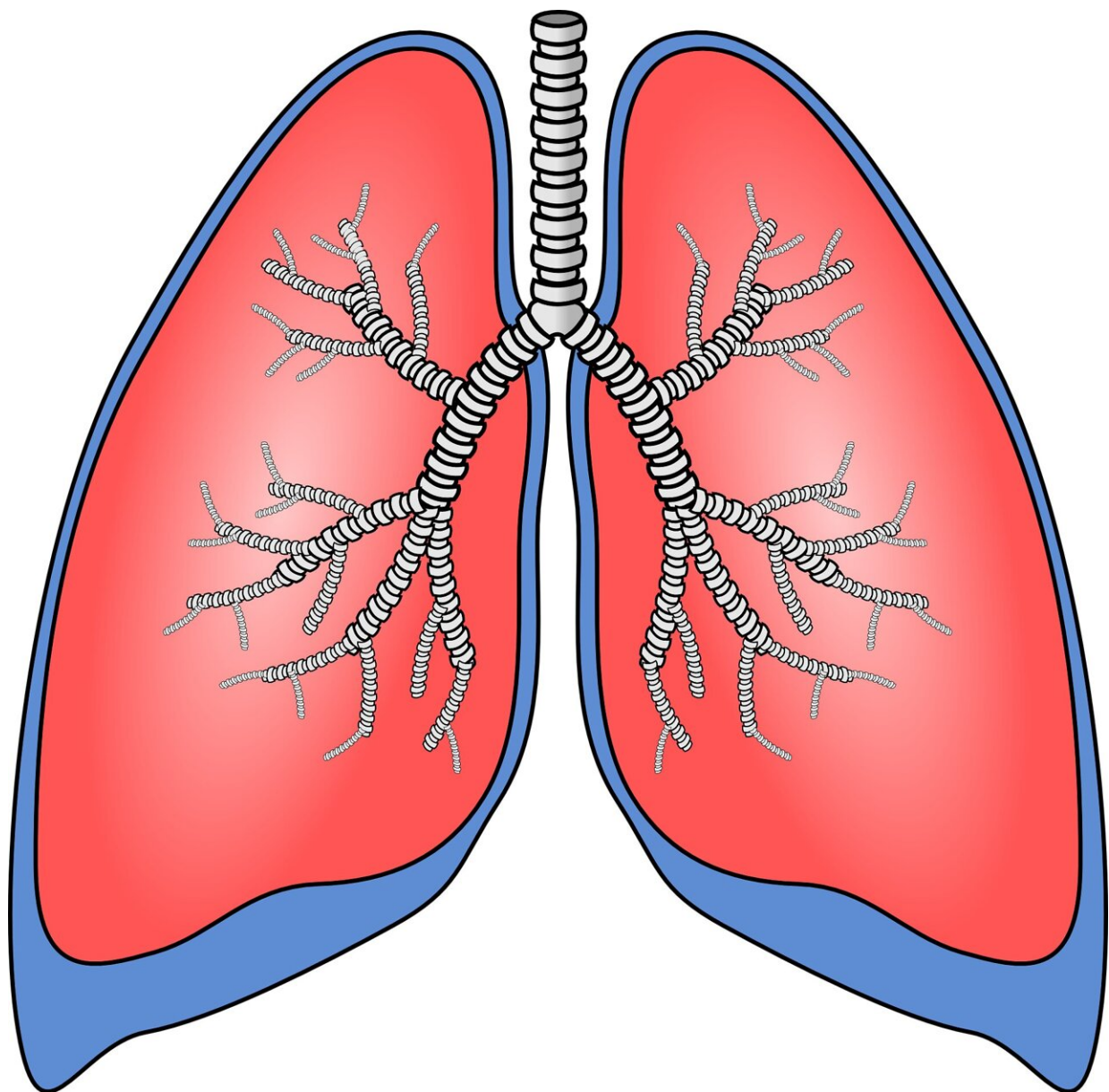


A probiotic for our lungs? New research poses questions about the future of treating COVID-19

February 23 2023



Credit: Pixabay/CC0 Public Domain

If we have learned one thing post-pandemic, it is that there is so much more to learn about the effects of COVID-19 on the population. A study published in *Microbial Genomics* has brought us a step closer to understanding more about how the virus affects our lung microbiome over time.

A microbiome is a community of microorganisms living together in a particular habitat. Studies have shown that there is a delicate balance of bacteria that play a vital role in living systems. For example, the human gut, soils, and oceans have unique microbiome communities. The lung was initially considered sterile, but scientists have recently discovered that much like the gut, the lung is colonized by a variety of different bacteria that can have both positive and negative outcomes on lung health.

Previous studies into the lung microbiome have identified how other respiratory viral infections (such as influenza and RSV) disrupt the delicate ecosystem of lung bacteria, but little is known about how SARS-CoV-2 infections affect our [upper respiratory tract](#) (URT) microbiome over time.

The URT has a distinct microbiome consisting of all parts of the respiratory system above the trachea, including the nasal cavity. The URT microbiome is a dynamic community, which can vary from person to person depending on a number of factors, such as air quality, location or smoking and lung disease.

By comparing the URT microbiomes of a group of healthy individuals against a group with COVID-19 using ribosomal RNA gene sequencing, researchers were able to observe the effects of a COVID-19 infection on URT bacterial diversity. Unlike previous studies, the team designed a [longitudinal study](#) that observed changes over time, taking samples from the COVID-19 infected group over 21 days.

While the results of the study are promising, more research must take place to explore this relationship further. This research was undertaken during the height of the pandemic, so researchers were limited. The study was carried out on only a small group of otherwise healthy participants.

Researchers hope that this work can be carried out in the future on a larger group of more diverse participants. As it is an observational study, it is also unclear whether other factors may have affected the URT microbiome and the mechanisms by which this may have occurred.

"What this study suggests is that the viral infection changes your respiratory microbiome. Depending on how the microbiome is changed can potentially be predictive of the outcome." Said Dr. Suman Ranjan Das, lead author of the study. "The health of the URT microbiota is a modifiable risk factor, and if somehow we can modify that, then potentially we can reduce the impact of the virus on the body."

Dr. Das hopes that this study and further understanding of URT microbial disturbances induced by SARS-CoV-2 can help design interventions that can decrease the morbidity and mortality of this disease in the future.

"When you get infected, should we also take a supplemental [bacteria](#) cocktail?" He continues, "If we can modify both the lung and the gut microbiome in the right way, can we get a better outcome?"

Changes to the URT microbiome, such as those described in this study, could have implications for our long-term health. The [microbiome](#) plays a significant role in health and well-being. Studies have identified links between the [lung microbiome](#), the immune system, and the brain.

In a world where over 670 million people have been infected by COVID worldwide, this could have monumental long-term effects on global public health.

More information: Christian Rosas-Salazar et al, Upper respiratory tract microbiota dynamics following COVID-19 in adults, *Microbial Genomics* (2023). [DOI: 10.1099/mgen.0.000957](https://doi.org/10.1099/mgen.0.000957)

Provided by Microbiology Society

Citation: A probiotic for our lungs? New research poses questions about the future of treating COVID-19 (2023, February 23) retrieved 24 April 2024 from <https://phys.org/news/2023-02-probiotic-lungs-poses-future-covid-.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--