



STUDY FINDINGS (SO FAR)



Thank you for being a part of the LIINC COVID-19 recovery study. We appreciate your dedication to our mission. Your participation has helped us better understand recovery from COVID-19 infection. LIINC has become one of the most productive and important Long COVID studies in the world. We have shared samples with over 50 groups of scientists all working together to figure out Long COVID. We are excited to share what we have learned so far!

ANTIBODY RESPONSE TO COVID-19

Antibody response to COVID-19 is related to how sick people get with COVID-19: Antibodies are proteins that protect us from viruses. People in the hospital with the most severe COVID-19 infections had the highest levels over time. Antibody levels tended to drop as more time passed since the infection. To learn more, click [here](#).



IMMUNE CELLS

Immune cells against COVID-19 last for at least 9 months: Our immune system makes cells called T cells that can destroy or weaken viruses. In LIINC volunteers, T cell responses remained stable for months after infection. To learn more, click [here](#).

HIV

HIV may make people more likely to develop Long COVID: Comparison of a group of LIINC volunteers living with HIV infection with a similar group of HIV-negative volunteers in LIINC showed that people with HIV were 4 times more likely to report Long COVID symptoms. To learn more, click [here](#).

EXERCISE

People with Long COVID have reduced stamina and a harder time exercising: We found that among people with Long COVID, nearly half struggled with an exercise test designed to find issues with the heart and lungs. To learn more, click [here](#).



OTHER VIRUSES

Certain infections with viruses other than COVID-19 also affected the probability of developing long COVID: We found that flare-ups of a different virus called Epstein-Barr Virus (the virus that causes mono) could possibly contribute to the development of certain Long COVID symptoms like thinking and memory issues and fatigue. To learn more, click [here](#).

FAULTY ANTIBODIES

Faulty antibodies (sometimes called autoimmunity) are not the whole story behind Long COVID: Some people have faulty antibodies that attack the body instead of invading viruses. We found that while there are some differences in these antibodies among people who've had a COVID-19 infection and those who have not, they are probably not the main cause of Long COVID. To learn more, click [here](#).

LASTING SYMPTOMS

COVID-19 causes long-lasting physical and mental symptoms: Many volunteers reported difficulties breathing, focusing, and sleeping months after their infection. Some experience anxiety, depression, and stress. We are studying what goes on in a person's body that could explain these symptoms. To learn more, click [here](#).

IMMUNE ACTIVATION

People with Long COVID had higher levels of proteins that indicate activation of the immune system: We found small but significant differences in levels of certain proteins that indicate inflammation in those who had Long COVID compared to those who did not. This suggests that the immune system may be activated in people with Long COVID when it shouldn't be and could contribute to ongoing symptoms. To learn more, click [here](#).



With what we've learned about Long COVID since the start of the COVID-19 pandemic, we are excited to announce our study will be launching clinical trials aimed at treating Long COVID in the near future. A staff member from the LIINC team might contact you to tell you more about it.





WHY YOUR PARTICIPATION IS IMPORTANT

- Our work could not be done without dedicated participants like you.
- Our research requires all types of people. This means we need people who are sick and people who are not sick in order to discover what's making some people feel unwell. Every participant is essential to the success of LIINC, no matter if you are experiencing Long COVID, feel completely fine, or are somewhere in between.
- LIINC is one of the oldest Long COVID studies in the world, dating back to early 2020. As we make progress toward determining what causes Long COVID, your participation in the study is as important as ever.
- Whether you've completed one LIINC visit or ten LIINC visits, every piece of data and every sample you've contributed helps us get answers.



FULL LINKS TO PAPERS

1. "Antibody Response to COVID-19": <https://tinyurl.com/LIINC-Antibody-Response>
2. "Exercise": <https://tinyurl.com/LIINC-Exercise>
3. "Other Viruses": <https://tinyurl.com/LIINC-Viruses>
4. "Immune Cells": <https://tinyurl.com/LIINC-Immune-Cells>
5. "HIV": <https://tinyurl.com/LIINC-HIV>
6. "Immune Activation": <https://tinyurl.com/LIINC-Immune-Activation>
7. "Faulty Antibodies": <https://tinyurl.com/LIINC-Faulty-Antibodies>
8. "Lasting Symptoms": <https://tinyurl.com/LIINC-Lasting-Symptoms>

