

First results from a large-scale long COVID study

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One of the largest studies to date into the long-term effects of COVID-19—the Long-CISS (COVID In Scotland Study)—found that 1 in 20 people who took part in the research had not recovered from having COVID-19 at their most recent follow up—between six and 18 months following infection with SARS-CoV-2.

The CISS study—which is led by the University of Glasgow in collaboration with Public Health Scotland, the NHS in Scotland, and the Universities of Aberdeen and Edinburgh—was set up in May 2021 to understand the long-term impact of COVID 19, and compare it with the health and well-being of people who had not yet been infected.

The first set of results from the [ongoing study](#), published today in *Nature Communications*, found that, overall, 42% of people infected with COVID-19 reported feeling only partially recovered between six- and 18-months following [infection](#). Details of each person's partial recovery were not given in the survey but could include a range of symptoms from mild to moderate and may not necessarily result in a long COVID diagnosis.

Reassuringly, the study found that those with asymptomatic infection had no long-term impact; and people who had been vaccinated prior to infection with COVID-19 appeared to have protection from some long-term symptoms.

However, the study found that the impact for people with long COVID were wide-reaching, with a wide-range of symptoms, impacts on all aspects of daily life and reduced overall quality of life. Overall, the study found that long COVID symptoms were more likely following severe infections requiring hospitalization. The most reported long COVID symptoms included breathlessness, chest pain, palpitations, and confusion, or 'brain fog'.

Long COVID was also more likely in individuals who were older, female and those from deprived communities. In addition, those with pre-existing physical and [mental health problems](#), such as respiratory disease and depression, were also more likely to experience long COVID.

The study found that while recovery status remained constant over the

follow-up period for most participants, 13% of people reported improvement over time and 11% reported some deterioration.

The CISS study used a Scottish population cohort of 33,281 laboratory-confirmed SARS-CoV-2 infections, matched with 62,957 never-infected individuals from the [general population](#), with both groups followed-up via six, 12 and 18-month questionnaires, with researchers able to link to hospitalization and death records.

Using NHS health data records, all Scottish adults who had a positive COVID-19 test, as well a sample of people who tested negative for the disease, were sent an SMS message inviting them to take part in the CISS study. Individuals were then asked to answer questions online about their health, both before and after COVID-19, to determine whether the virus has had any lasting effects on their lives.

Professor Jill Pell, Professor of Public Health at the University of Glasgow, who leads the study, says that "while most people recover quickly and completely after infection with COVID-19, some people develop a wide variety of long-term problems. Therefore, understanding long COVID is essential to inform health and social care support."

"Our study is important because it adds to our understanding of long COVID in the general population, not just in those people who need to be admitted to hospital with COVID-19. By comparing symptoms with those uninfected, we were able to distinguish between health problems that are due to COVID-19 and health problems that would have happened anyway."

Dr. Andrew McAuley, Consultant Healthcare Scientist at Public Health Scotland, added that "this study provides novel and important evidence on long COVID in Scotland. We know that being fully vaccinated against COVID-19 can reduce the likelihood of developing long COVID

and therefore we encourage those who are eligible for the COVID vaccine to take the opportunity to enhance their protection by getting vaccinated."

More information: Claire E. Hastie et al, Outcomes among confirmed cases and a matched comparison group in the Long-COVID in Scotland study, *Nature Communications* (2022). [DOI: 10.1038/s41467-022-33415-5](https://doi.org/10.1038/s41467-022-33415-5)

Provided by University of Glasgow

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